

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.05.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 024

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV475...1150A0C896R  
Governor no. : F 002 A20 218

Cust. part No. : 3928596

## Customer-spec. information

Customer : CDC  
Motor : 6BTA  
Power KW : 126.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

A01

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Start of delivery blocking

°NW after s.o.d. : 8.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 5.80  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 3.75

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

#### CONTROL LEVER

control lever  
position degree : 106.0  
tolerance degree : ± 4.0

#### RATED SPEED

rack travel mm : 12.10  
Rated speed rpm : 1220  
Tolerance 1/min : ± 5

rack travel mm : 6.70  
Rated speed rpm : 1280  
Tolerance 1/min : ± 5

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1400

rack travel mm : 6.70  
Rated speed rpm : 1280  
Tolerance 1/min : ± 15

#### LOW IDLE

control lever  
position degree : 83.0  
tolerance degree : ± 4.0

Control lever difference  
Grad : 23.0  
tolerance degree : ± 6.0

#### Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 5.30  
Tolerance mm : ± 0.10

Rated speed rpm : 100



CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 5.80  
Tolerance mm :  $\pm$  0.10

TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 900

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 590  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 475  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 87.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

LOW IDLE

Rated speed rpm : 475

Rack travel in mm : 5.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 30.05.97

Test oil : ISO 4113

Combination No. : F 002 A0Z 062

Injection pump

Pump designation : PES4A95D320/3RS2927

EP type number : F 002 A10 017

Governor

Governor design. : RSV475...1100A2C942R

Governor no. : F 002 A20 243

Cust. part No. : 3930142

## Customer-spec. information

Customer : CDC

Motor : 4BNA3.9

Power kW : 50.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Test nozzle holde  
assembly

: 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : ± 1.0

Prestroke mm : 2.85

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.75

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.25

Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 82.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.0

Speed

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 4.60  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 13.5

Tolerance  
cm3/1000 strokes : +- 2.0

Check tolerance  
cm3/1000S. : +- 4.5

Speed

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 3.75

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : -

Del. quantity  
cm3/1000 strokes : 82.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.0

Speed

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 6.0

#### CONTROL LEVER

control lever  
position degree : 87.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 8.20  
Rated speed rpm : 1155  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1215

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1450

rack travel mm : 4.00  
Rated speed rpm : 1215  
Tolerance 1/min : +- 15

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : +- 4.0

Control lever difference  
Grad : 15.0  
tolerance degree : +- 6.0

#### Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 4.10  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 9.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 79.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5

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Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.06.97  
Test oil : ISO 4113

Combination No. : 0 402 646 739

Injection pump  
Pump designation : PE6P120A320LS7904  
EP type number : 0 412 626 961

Governor  
Governor design. : RQ750PA1326  
Governor no. : 0 421 801 815

Cust. part No. : 04222 3926 KY

Customer-spec. information  
Customer : KHD  
Motor : BF6M1015/C  
Power KW : 239.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 250  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 300.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm	:	700
<hr/>		
Rack travel in mm	:	12.40
Tolerance mm	:	± 0.05
<hr/>		
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	365.0
<hr/>		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	± 1.0
<hr/>		
Check tolerance		
cm <sup>3</sup> /1000S.	:	± 4.0
<hr/>		
Spreed		
<hr/>		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	5.0
<hr/>		
Check tolerance		
cm <sup>3</sup> /1000S.	:	9.0
<hr/>		

Rated speed rpm	:	300
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	20.0
Tolerance		
cm <sup>3</sup> /1000 strokes	:	± 3.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	± 6.0
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	8.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	745
guide sleeve		
travel mm	:	4.54
Tolerance mm	:	± 0.15
<hr/>		
Rated speed rpm	:	300
guide sleeve		
travel mm	:	1.24
Tolerance mm	:	± 0.20
<hr/>		
Rated speed rpm	:	860
guide sleeve		
travel mm	:	5.59
Tolerance mm	:	± 0.10

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Rated speed rpm	:	271
guide sleeve		
travel mm	:	1.00
Tolerance mm	:	± 0.10
<hr/>		
Rated speed rpm	:	560
guide sleeve		
travel mm	:	3.24
Tolerance mm	:	± 0.10
<hr/>		
Rated speed rpm	:	1154
guide sleeve		
travel mm	:	12.00
Tolerance mm	:	± 0.10
<hr/>		
Rated speed rpm	:	1230
guide sleeve		
travel mm	:	13.50
Tolerance mm	:	± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	700
Aneroid pressure		
hPa	:	-
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	365.0
Tolerance		
cm <sup>3</sup> /1000 strokes	:	± 1.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	± 4.0
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	5.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	9.0

CONTROL LEVER

control lever		
position degree	:	109.0
tolerance degree	:	± 4.0

RATED SPEED

rack travel mm	:	0.50
Tolerance mm	:	± 0.50
Rated speed rpm	:	900

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	:	750
rack travel mm	:	11.40
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Rated speed rpm	:	780
Tolerance 1/min	:	± 4

rack travel mm : 4.50  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 900

Rated speed rpm : 751  
rack travel mm : 11.40

Rated speed rpm : 781  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.50

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50

Rated speed rpm : 752  
rack travel mm : 11.40

Rated speed rpm : 782  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.50

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 900

Rated speed rpm : 753  
rack travel mm : 11.40

Rated speed rpm : 783  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.50

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50

Rated speed rpm : 754  
rack travel mm : 11.40

Rated speed rpm : 784  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.50

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 900

Rated speed rpm : 755  
rack travel mm : 11.40

Rated speed rpm : 785  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.50

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50

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#### LOW IDLE

control lever  
position degree : 67.0  
tolerance degree :  $\pm$  4.0

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#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.05

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#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 560

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 580

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

check tolerance  
m3/1000S. : 12.0

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End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.06.97

Test oil : ISO 4113

Combination No. : 0 402 746 608

## Injection pump

Pump designation : PES6P120A320RS7359

EP type number : 0 412 726 925

## Governor

Governer design. : RQ275/1050PA1275

Governer no. : 0 421 801 805

Cust. part No. : CCEP 5157A 66-222

## Customer-spec. information

Customer : RENAULT V.I.

Motor : MIDR062045 F/C41

Power KW : 152.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 220

Tolerance l/h : ± 10.0

## Test nozzle holde

assembly : 1 688 901 101

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.70

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.25

Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

°NW after s.o.d. : -0.95

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## CRT ZERO POSITION

Rack travel in mm : 11.70  
Tolerance mm : +- 0.05

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#### BASIC SETTING

Rated speed rpm : 1050

Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0

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Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

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Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

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Spread

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Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

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Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

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Rated speed rpm : 275

Rack travel in mm : -6.00  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

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##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1122  
guide sleeve  
travel mm : 7.06  
Tolerance mm : +- 0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.44  
Tolerance mm : +- 0.20

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.70  
Tolerance mm : +- 0.10

Rated speed rpm : 648  
guide sleeve  
travel mm : 6.18  
Tolerance mm : +- 0.10

Rated speed rpm : 375  
guide sleeve  
travel mm : 5.00  
Tolerance mm : +- 0.10

Rated speed rpm : 450  
guide sleeve  
travel mm : 6.00  
Tolerance mm : +- 0.10

Rated speed rpm : 1300  
guide sleeve  
travel mm : 11.50  
Tolerance mm : +- 0.50

Rated speed rpm : 873  
guide sleeve  
travel mm : 6.52  
Tolerance mm : +- 0.10

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##### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 500

Rack travel in mm : 20.00  
Tolerance mm : +- 0.80

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##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

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### CONTROL LEVER

control lever  
position degree : 276.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : -1.00  
Rated speed rpm : 1115  
Tolerance 1/min :  $\pm$  5

rack travel mm : -7.70  
Rated speed rpm : 1205  
Tolerance 1/min :  $\pm$  15

rack travel mm : -11.20  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

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### LOW IDLE

control lever  
position degree : 256.0  
tolerance degree :  $\pm$  4.0

### Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $<$  -4.10

### Testing:

Rated speed rpm : 275  
rack travel mm : -6.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : -9.60  
Rated speed rpm : 375  
Tolerance 1/min :  $\pm$  20

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### TORQUE CONTROL

Rated speed rpm : 1050

Rated speed rpm : 600  
rack travel mm : 1.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 0.80  
Tolerance mm :  $\pm$  0.20

---

### ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 1.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : -0.70  
Tolerance mm :  $\pm$  0.20

### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 280  
rack travel mm : 0.65  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 160  
rack travel mm : -0.15  
Tolerance mm :  $\pm$  0.05

---

### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  195

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  215

---

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 151.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : -6.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.06.97  
Test oil : ISO 4113  
Combination No. : F 000 409 102  
Injection pump  
Pump designation : PES6P120A720LS7257  
: -11  
EP type number : F 000 400 201  
Governor  
Governor design. : RQV300...950PA1242  
Governor no. : 9 420 080 387  
Cust. part No. : 0280743302

## Customer-spec. information

Customer : MBB  
Motor : OM 447LA Euro II  
Power KW : 264.8

## TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.3  
Test nozzle holde  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5  
Test lines : 1 680 750 075  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0  
Prestroke mm : 4.70  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10  
Rack travel in mm : 21.00  
Firing order : 6- 2- 4- 1- 5-  
: 3  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

## BASIC SETTING

Rated speed rpm : 600  
Rack travel in mm : 13.30  
Tolerance mm : +- 0.05  
Del. quantity  
cm3/1000 strokes : 277.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0  
Speed

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 13.0

Tolerance  
cm3/1000 strokes : +- 3.0

Check tolerance  
cm3/1000S. : +- 6.0

Spread  
Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 700  
guide sleeve  
travel mm : 4.55  
Tolerance mm : +- 0.25

Rated speed rpm : 1050  
guide sleeve  
travel mm : 7.70  
Tolerance mm : +- 0.10

Rated speed rpm : 300  
guide sleeve  
travel mm : 0.75  
Tolerance mm : +- 0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 3.45  
Tolerance mm : +- 0.25

Rated speed rpm : 1165  
guide sleeve  
travel mm : 9.55  
Tolerance mm : +- 0.25

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1120

Rack travel in mm : 16.50  
Tolerance mm : +- 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1300

Del. quantity  
cm3/1000 strokes : 277.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 4.0

Spread  
Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 114.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 12.10  
Rated speed rpm : 1025  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1135  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1230

##### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 8.00

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 325

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1300  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 850  
rack travel mm : 2.45  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 550  
rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.10

#### Start interlock

Rated speed rpm : > 100

Rated speed rpm : < 220

Check  
speed 1/min : > 80

Check  
speed 1/min : < 240

#### FUEL DELIVERY CHARACTERISTICS

##### Aneroid pressure

hPa : 1300

Rated speed rpm : 950

Del. quantity  
cm<sup>3</sup>/1000 strokes : 258.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

##### Aneroid pressure

hPa : 1300

Rated speed rpm : 750

Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

##### Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 269.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.06.97

Test oil : ISO 4113

Combination No. : 0 402 076 775

## Injection pump

Pump designation : PES6P100A320LS3342

EP type number : 0 412 006 710

## Governor

Governer design. : RSV415...1100P8A597

Governer no. : 0 421 833 463

Cust. part No. : 1824626C91

## Customer-spec. information

Customer : NAVISTAR

Motor : DT-530

Power KW : 153.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8

Tolerance bar : ± 0.1

## Test nozzle holde assembly

: 1 688 901 101

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : ± 1.0

Prestroke mm : 3.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55

Tolerance mm : ± 0.05

## Del. quantity

cm<sup>3</sup>/1000 strokes : 104.5

## Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

## Check tolerance

cm<sup>3</sup>/1000S. : ± 3.0

## Speed

Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm3/1000 strokes : 104.5  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 107.5  
tolerance degree :  $\pm$  6.0

RATED SPEED  
rack travel mm : 10.50

A20

Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

rack travel mm : 4.00  
Rated speed rpm : 1205  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

##### LOW IDLE

control lever  
position degree : 78.5  
tolerance degree :  $\pm$  6.0

##### Setting point w/out bumper spring

Rated speed rpm : 100  
CRT mm min. :  $>$  19.00

##### Testing:

Rated speed rpm : 415  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.10

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 800  
Pressure hPa : 1200  
rack travel mm : 12.55  
Tolerance mm :  $\pm 0.10$

#### MEASUREMENT

Rated speed rpm : 800  
Pressure hPa : 435  
rack travel mm : 11.60  
Tolerance mm :  $\pm 0.20$

Pressure hPa : 250  
rack travel mm : 10.05  
Tolerance mm :  $\pm 0.05$

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 4.0$

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 4.0$

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm 0.50$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 20.0$   
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 25.0$

---

LOW IDLE

Rack travel in mm : 5.60  
Tolerance mm :  $\pm 0.10$

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.06.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 076 819  
  
Injection pump  
Pump designation : PES6P120A720RS3352  
EP type number : 0 412 026 780  
  
Governor  
Governor design. : RSV425...1100P2A599  
: -9  
Governor no. : 0 421 833 606

Cust. part No. : RE500742

## Customer-spec. information

Customer : DEERE  
Motor : 6081AF001  
Power KW : 187.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 457 413 010  
  
Inlet press. bar : 2.0  
  
Test nozzle holder  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 015  
  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Start of delivery mark

°NW after s.o.d. : 8.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery difference

and maximum rack  
travel : 14.00  
Difference ° CS : 2.50

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.45  
Tolerance mm : +- 0.05

Del. quantity  
cm3/1000 strokes : 161.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.0

Speed

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 6.5

Rated speed rpm : 425

Rack travel in mm : 5.90  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 29.0

Tolerance  
cm3/1000 strokes : +- 2.0

Check tolerance  
cm3/1000S. : +- 4.5

Speed

Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 4.25

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1600

Del. quantity  
cm3/1000 strokes : 161.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.0

Speed

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 6.5

#### CONTROL LEVER

control lever  
position degree : 97.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 11.45  
Rated speed rpm : 1145

Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1205

Tolerance 1/min : +- 5

rack travel mm : 0.85  
Tolerance mm : +- 0.55

Rated speed rpm : 1350

rack travel mm : 4.00  
Rated speed rpm : 1215

Tolerance 1/min : +- 15

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 425  
rack travel mm : 5.40

Tolerance mm : +- 0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00  
Testing:  
Rated speed rpm : 425  
rack travel mm : 5.90  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1600

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.80  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 960  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 475  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm : > 100  
Check  
speed 1/min : > 80

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 71.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 425  
Rack travel in mm : 5.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 29.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.06.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 063

Injection pump  
Pump designation : PES4A95D320/3RS2927  
EP type number : F 002 A10 017

Governor  
Governor design. : RSV475...1100A2C943R  
Governor no. : F 002 A20 244

Cust. part No. : 3931397

Customer-spec. information  
Customer : CDC  
Motor : 4BNA3.9  
Power KW : 45.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 7.75  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 8.20  
Tolerance mm : ± 0.05



Del. quantity cm <sup>3</sup> /1000 strokes	: 72.5
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 6.0
<hr/>	

Rated speed rpm	: 475
<hr/>	
Rack travel in mm	: 4.60
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 13.5
Tolerance cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.5
<hr/>	
Spreed	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance cm <sup>3</sup> /1000S.	: 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
<hr/>	
governor spring	
pre-tension	
click setting x	: 3.75

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
-----------------	--------

Aneroid pressure	
hPa	: -
<hr/>	
Del. quantity cm <sup>3</sup> /1000 strokes	: 72.5
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance cm <sup>3</sup> /1000S.	: 6.0

#### CONTROL LEVER

control lever	
position degree	: 93.0
tolerance degree	: ± 4.0

#### RATED SPEED

rack travel mm	: 7.20
Rated speed rpm	: 1155
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1190
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1300

rack travel mm	: 4.00
Rated speed rpm	: 1190
Tolerance 1/min	: ± 15

#### LOW IDLE

control lever	
position degree	: 71.0
tolerance degree	: ± 4.0

Control lever difference	
Grad	: 22.0
tolerance degree	: ± 6.0

#### Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 4.10
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 8.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 9.20  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure

hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 67.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.06.97  
Test oil : ISO 4113  
Combination No. : 0 402 046 866  
Injection pump  
Pump designation : PES6P120A720RS3346  
EP type number : 0 412 026 778  
Governor  
Governor design. : RQ300/1025PA1213  
Governor no. : 0 421 801 783

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FIAT  
Motor : 8360.46.4649

## TEST BENCH REQUIREMENTS

Inlet line : 2.4  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 034  
Inlet press. bar : 2.5  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0  
x inside diameter : 3.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 11.90  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.50  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : 97  
Rated speed rpm : 550

Rack travel in mm : 14.30  
Tolerance mm : + 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1025  
Aneroid pressure

hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

B02

rack travel mm : 10.90  
Rated speed rpm : 1078

Tolerance 1/min : + 8

Check  
speed 1/min : + 13

rack travel mm : 4.00  
Rated speed rpm : 1150

Tolerance 1/min : + 15

Check  
speed 1/min : + 20

rack travel mm : 0.50  
Tolerance mm : + 0.50

Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 70.0

tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 7.00

##### Testing:

Rated speed rpm : 300  
rack travel mm : 5.50

Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 380

Tolerance 1/min : + 20

##### TORQUE CONTROL

Rated speed rpm : 1025  
rack travel mm : 11.90

Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 11.95

Tolerance mm : + 0.10

Rated speed rpm : 1025  
rack travel mm : 12.35

Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 12.40

Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 270  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.20  
  
Pressure hPa : 500  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 900  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 102.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.06.97  
Test oil : ISO 4113

Combination No. : 0 402 046 872

Injection pump  
Pump designation : PES6P120A320RS3337  
EP type number : 0 412 026 770

Governor  
Governor design. : RQV300...1250PA1246K  
Governor no. : 0 421 815 480

Cust. part No. : CCEP 5155A 66-217

## Customer-spec. information

Customer : RENAULT V.I.  
Motor : MIDR 06-02-26 U4  
Power KW : 111.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 135  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.10  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 11.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

°NW after s.o.d. : 0.08  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery difference

betw. rack trav.  
mm : 21.00  
and maximum rack  
travel : 11.00  
Difference °CS : 2.00

---

#### CRT ZERO POSITION

Rack travel in mm : 10.60  
Tolerance mm :  $\pm$  0.05

---

#### BASIC SETTING

Rated speed rpm : 1250

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : -5.80  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1333  
guide sleeve  
travel mm : 10.40  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.31  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 900  
guide sleeve  
travel mm : 6.50  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 530  
guide sleeve  
travel mm : 3.77  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1580  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1400

Rack travel in mm : 10.50  
Tolerance mm :  $\pm$  1.50

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 296.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : -1.00

Rated speed rpm : 1305  
Tolerance 1/min :  $\pm$  15

rack travel mm : -6.60  
Rated speed rpm : 1400  
Tolerance 1/min :  $\pm$  5

rack travel mm : -10.10  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1550

---

#### LOW IDLE

control lever  
position degree : 242.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $<$  -4.80

#### Testing:

Rated speed rpm : 300  
rack travel mm : -5.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 380

---

#### TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 750  
rack travel mm : -1.65  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 350  
rack travel mm : -2.55  
Tolerance mm :  $\pm$  0.20

---

#### Start interlock

Rated speed rpm :  $>$  130  
Rated speed rpm :  $<$  245

Check  
speed 1/min :  $>$  110  
Check  
speed 1/min :  $<$  255

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 102.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 108.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : -5.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.06.97  
Test oil : ISO 4113

Combination No. : 0 402 646 739

Injection pump  
Pump designation : PE6P120A320LS7904-1  
EP type number : 0 412 626 964

Governor  
Governor design. : RQ750PA1326  
Governor no. : 0 421 801 815

Cust. part No. : 04222 3926 KY

Customer-spec. information  
Customer : KHD  
Motor : BF6M1015/C  
Power KW : 239.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 200  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 300.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm	: 700
<hr/>	
Rack travel in mm	: 12.40
Tolerance mm	: +- 0.05
<hr/>	
Del. quantity cm <sup>3</sup> /1000 strokes	: 365.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: +- 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: +- 4.0
<hr/>	
Spread	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 9.0
<hr/>	

Rated speed rpm	: 300
Del. quantity cm <sup>3</sup> /1000 strokes	: 20.0
Tolerance cm <sup>3</sup> /1000 strokes	: +- 3.0
Check tolerance cm <sup>3</sup> /1000S.	: +- 6.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 745
guide sleeve travel mm	: 4.54
Tolerance mm	: +- 0.15
<hr/>	
Rated speed rpm	: 300
guide sleeve travel mm	: 1.24
Tolerance mm	: +- 0.20
<hr/>	
Rated speed rpm	: 860
guide sleeve travel mm	: 5.59
Tolerance mm	: +- 0.10

Rated speed rpm	: 271
guide sleeve travel mm	: 1.00
Tolerance mm	: +- 0.10
<hr/>	
Rated speed rpm	: 560
guide sleeve travel mm	: 3.24
Tolerance mm	: +- 0.10
<hr/>	
Rated speed rpm	: 1154
guide sleeve travel mm	: 12.00
Tolerance mm	: +- 0.10
<hr/>	
Rated speed rpm	: 1230
guide sleeve travel mm	: 13.50
Tolerance mm	: +- 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 365.0
Tolerance cm <sup>3</sup> /1000 strokes	: +- 1.0
Check tolerance cm <sup>3</sup> /1000S.	: +- 4.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

##### CONTROL LEVER

control lever position degree	: 109.0
tolerance degree	: +- 4.0

##### RATED SPEED

rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 900

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 750
rack travel mm	: 11.40
<hr/>	
Rated speed rpm	: 780
Tolerance 1/min	: +- 4

rack travel mm : 4.50  
 rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50  
 Rated speed rpm : 900

Rated speed rpm : 751  
 rack travel mm : 11.40

Rated speed rpm : 781  
 Tolerance 1/min :  $\pm$  4  
 rack travel mm : 4.50

rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50

Rated speed rpm : 752  
 rack travel mm : 11.40

Rated speed rpm : 782  
 Tolerance 1/min :  $\pm$  4  
 rack travel mm : 4.50

rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50  
 Rated speed rpm : 900

Rated speed rpm : 753  
 rack travel mm : 11.40

Rated speed rpm : 783  
 Tolerance 1/min :  $\pm$  4  
 rack travel mm : 4.50

rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50

Rated speed rpm : 754  
 rack travel mm : 11.40

Rated speed rpm : 784  
 Tolerance 1/min :  $\pm$  4  
 rack travel mm : 4.50

rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50  
 Rated speed rpm : 900

Rated speed rpm : 755  
 rack travel mm : 11.40

Rated speed rpm : 785  
 Tolerance 1/min :  $\pm$  4  
 rack travel mm : 4.50

rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50

#### LOW IDLE

control lever  
 position degree : 62.0  
 tolerance degree :  $\pm$  4.0

#### TORQUE CONTROL

Rated speed rpm : 700  
 rack travel mm : 12.40  
 Tolerance mm :  $\pm$  0.05

#### Start interlock

Rated speed rpm :  $>$  100  
 Rated speed rpm :  $<$  560

Check  
 speed 1/min :  $>$  80  
 Check  
 speed 1/min :  $<$  580

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.25  
 Tolerance mm :  $\pm$  0.75  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 210.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  24.0

#### LOW IDLE

Rated speed rpm : 300  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 20.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.06.97  
Test oil : ISO 4113

Combination No. : 0 402 646 785

Injection pump  
Pump designation : PE6P120A320LS7869  
EP type number : 0 412 626 887

Governor  
Governor design. : RQV300...1050PA1078K  
Governor no. : 0 421 815 359

Cust. part No. : 9275445

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9406 TI  
Power KW : 300.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 165  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 291.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.38  
Tolerance mm : +- 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.69  
Tolerance mm : +- 0.25

Rated speed rpm : 746  
guide sleeve  
travel mm : 6.20  
Tolerance mm : +- 0.25

Rated speed rpm : 353  
guide sleeve  
travel mm : 2.45  
Tolerance mm : +- 0.25

Rated speed rpm : 403  
guide sleeve  
travel mm : 3.18  
Tolerance mm : +- 0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.66  
Tolerance mm : +- 0.25

Rated speed rpm : 1320  
guide sleeve  
travel mm : 13.50  
Tolerance mm : +- 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1185

Rack travel in mm : 10.80  
Tolerance mm : +- 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 291.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 11.30  
Rated speed rpm : 1110  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1300

Tolerance 1/min : + 15

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : > 6.50

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm : + 0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.30  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 10.10  
Tolerance mm : + 0.10

Rated speed rpm : 800  
rack travel mm : 11.60  
Tolerance mm : + 0.10

Rated speed rpm : 950  
rack travel mm : 12.20  
Tolerance mm : + 0.10

Rated speed rpm : 600  
rack travel mm : 10.20  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1050  
Pressure hPa : 1550  
rack travel mm : 12.30  
Tolerance mm : + 0.05

Rated speed rpm : 1050  
Pressure hPa : -  
rack travel mm : 9.10  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 1050  
Pressure hPa : 670  
rack travel mm : 11.00  
Tolerance mm : + 0.05

Pressure hPa : 600  
rack travel mm : 10.50  
Tolerance mm : + 0.20

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1550  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 288.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

Aneroid pressure  
hPa : 1550  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 301.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

## STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

## LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.06.97  
Test oil : ISO 4113

Combination No. : 0 402 646 785A

Injection pump  
Pump designation : PE6P120A320LS7869  
EP type number : 0 412 626 887

Governor  
Governor design. : RQV300...1050PA1078K  
Governor no. : 0 421 815 359

Cust. part No. : 9275445

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9406 TI  
Power KW : 300.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 165  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 291.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : +- 4.0

Spread

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00

Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 25.0

Tolerance  
cm3/1000 strokes : +- 3.0

Check tolerance  
cm3/1000S. : +- 6.0

Spread

Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.38  
Tolerance mm : +- 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.69  
Tolerance mm : +- 0.25

Rated speed rpm : 746  
guide sleeve  
travel mm : 6.20  
Tolerance mm : +- 0.25

Rated speed rpm : 353  
guide sleeve  
travel mm : 2.45  
Tolerance mm : +- 0.25

Rated speed rpm : 403  
guide sleeve  
travel mm : 3.18  
Tolerance mm : +- 0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.66  
Tolerance mm : +- 0.25

Rated speed rpm : 1320  
guide sleeve  
travel mm : 13.50  
Tolerance mm : +- 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1185

Rack travel in mm : 11.00  
Tolerance mm : +- 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1550  
Del. quantity  
cm3/1000 strokes : 291.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0  
Spread  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 11.00  
Rated speed rpm : 1105  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1300

Tolerance 1/min : +- 15

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 6.50

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm : +- 0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.30  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
rack travel mm : 10.10  
Tolerance mm : +- 0.10

Rated speed rpm : 800  
rack travel mm : 11.60  
Tolerance mm : +- 0.10

Rated speed rpm : 950  
rack travel mm : 12.20  
Tolerance mm : +- 0.10

Rated speed rpm : 600  
rack travel mm : 10.20  
Tolerance mm : +- 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1050  
Pressure hPa : 1550  
rack travel mm : 12.30  
Tolerance mm : +- 0.05

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 9.10  
Tolerance mm : +- 0.20

#### MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 670  
rack travel mm : 11.00  
Tolerance mm : +- 0.05

Pressure hPa : 600  
rack travel mm : 10.50  
Tolerance mm : +- 0.20

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1550  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 288.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +- 6.0

Aneroid pressure  
hPa : 1550  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 301.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +- 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 9.90  
Tolerance mm : +- 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 14.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.00  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.06.97  
Test oil : ISO 4113

Combination No. : 0 402 648 702

Injection pump  
Pump designation : PE8P120A320LS7875  
EP type number : 0 412 628 881

Governor  
Governor design. : RQV250...1150PA1346  
Governor no. : 0 421 814 193

Cust. part No. :

Customer-spec. information  
Customer : DHI  
Motor : DV15T  
Power KW : 265.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 125  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 16.00  
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.80  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 222.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 7.0
Check tolerance cm <sup>3</sup> /1000S.	: 10.0

Rated speed rpm	: 250
Rack travel in mm	: 5.60
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 20.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 6.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1207
guide sleeve travel mm	: 8.92
Tolerance mm	: ± 0.15
Rated speed rpm	: 250
guide sleeve travel mm	: 1.31
Tolerance mm	: ± 0.20
Rated speed rpm	: 1185
guide sleeve travel mm	: 8.60
Tolerance mm	: ± 0.25
Rated speed rpm	: 640

guide sleeve travel mm	: 4.65
Tolerance mm	: ± 0.25
Rated speed rpm	: 1390
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1227
Rack travel in mm	: 12.80
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 222.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 7.0
Check tolerance cm <sup>3</sup> /1000S.	: 10.0

CONTROL LEVER

control lever position degree	: 58.0
tolerance degree	: ± 4.0
control lever position degree	: 122.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 12.80
Rated speed rpm	: 1195
Tolerance 1/min	: ± 5
rack travel mm	: 4.00
Rated speed rpm	: 1295
Tolerance 1/min	: ± 15
rack travel mm	: 0.50

Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1400

---

#### LOW IDLE

control lever  
position degree : 85.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 21.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. :  $>$  7.30

#### Testing:

Rated speed rpm : 250  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.10  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 350  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 735  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  165  
Rated speed rpm :  $<$  190

Check  
speed 1/min :  $>$  155  
Check  
speed 1/min :  $<$  210

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 241.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 123.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.06.97  
Test oil : ISO 4113

Combination No. : 0 402 648 703

Injection pump  
Pump designation : PE8P120A3Z0LS7880  
EP type number : 0 412 628 889

Governor  
Governor design. : RQV350...1050PA1352  
Governor no. : 0 421 814 197

Cust. part No. : 0270747202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA euromot  
Power KW : 405.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.75  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.00  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 282.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1110  
guide sleeve  
travel mm : 8.10  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.48  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 900  
guide sleeve  
travel mm : 5.69  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 580  
guide sleeve  
travel mm : 3.62  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1204  
guide sleeve  
travel mm : 10.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1300  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1154

Rack travel in mm : 14.00  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 282.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 14.00  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1180

Tolerance 1/min :  $\pm$  15  
rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 67.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
CRT mm min. :  $>$  7.50

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : -

#### MEASUREMENT

Pressure hPa : 500  
rack travel mm : 1.40  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 1000  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.20

---

#### Start interlock

Rated speed rpm :  $>$  210  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  190  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### REDUCED QUANTITY

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

# STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm3/1000 strokes : 280.0  
Tolerance  
cm3/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm3/1000S. :  $\pm$  14.0

---

# LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm3/1000 strokes : 19.0  
Tolerance  
cm3/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm3/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.06.97  
Test oil : ISO 4113

Combination No. : 0 402 648 704

Injection pump  
Pump designation : PE8P120A320LS7899  
EP type number : 0 412 628 916

Governor  
Governor design. : RQV350...1050PA1353  
Governor no. : 0 421 814 198

Cust. part No. : 0270742502

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM442 LA euromot  
Power KW : 405.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 90  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.75  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.00  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 282.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.70  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1110  
guide sleeve  
travel mm : 8.10  
Tolerance mm : +- 0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.48  
Tolerance mm : +- 0.20

Rated speed rpm : 900  
guide sleeve  
travel mm : 5.69  
Tolerance mm : +- 0.25

Rated speed rpm : 580  
guide sleeve  
travel mm : 3.62  
Tolerance mm : +- 0.25

Rated speed rpm : 1204  
guide sleeve  
travel mm : 10.00  
Tolerance mm : +- 0.25

Rated speed rpm : 1300  
guide sleeve  
travel mm : 11.50  
Tolerance mm : +- 0.50

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1154

Rack travel in mm : 14.00  
Tolerance mm : +- 1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 282.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 14.00  
Rated speed rpm : 1098  
Tolerance 1/min : +- 8

rack travel mm : 4.00  
Rated speed rpm : 1180

Tolerance 1/min : + 15  
rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 67.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
CRT mm min. : > 7.50

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.70  
Tolerance mm : + 0.10  
  
Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 15.00  
Tolerance mm : + 0.05

Rated speed rpm : 600  
rack travel mm : 15.00  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : -

#### MEASUREMENT

Pressure hPa : 500  
rack travel mm : 1.40  
Tolerance mm : + 0.05

Pressure hPa : 1000  
rack travel mm : 6.00  
Tolerance mm : + 0.20

---

#### Start interlock

Rated speed rpm : > 210  
Rated speed rpm : < 270

Check  
speed 1/min : > 190  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

---

#### Aneroid pressure

hPa : 1300  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### REDUCED QUANTITY

---

#### Aneroid pressure

hPa : 1300  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.06.97  
Test oil : ISO 4113

Combination No. : 0 402 676 839

Injection pump  
Pump designation : PE6P120A320LS7898  
EP type number : 0 412 626 957

Governor  
Governor design. : RSV350...850POA683  
Governor no. : 0 421 833 602

Cust. part No. : 0280743102

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM441 A  
Power KW : 165.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 130  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.70  
Tolerance mm : +- 0.05

Del. quantity  
cm3/1000 strokes : 191.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 4.0

Speed

Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 10.0

Rated speed rpm : 350

Rack travel in mm : 5.10  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 19.0

Tolerance  
cm3/1000 strokes : +- 3.0

Check tolerance  
cm3/1000S. : +- 6.0

Speed

Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850

Aneroid pressure  
hPa : 1000

Del. quantity  
cm3/1000 strokes : 191.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 4.0

Speed

Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 10.0

##### CONTROL LEVER

control lever  
position degree : 87.0  
tolerance degree : +- 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 875  
rack travel mm : 11.70

Rated speed rpm : 940  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1300

Rated speed rpm : 876  
rack travel mm : 11.70

Rated speed rpm : 941  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1300

Rated speed rpm : 877  
rack travel mm : 11.70

Rated speed rpm : 942  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 878  
rack travel mm : 11.70

Rated speed rpm : 943  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 879  
rack travel mm : 11.70

Rated speed rpm : 944  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 880  
rack travel mm : 11.70

Rated speed rpm : 945  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100  
CRT mm min. :  $>$  19.00

Testing:

Rated speed rpm : 350  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10

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rack travel mm : 2.00  
Rated speed rpm : 415

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.15

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : -

Pressure hPa : 450  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.10  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 698 033F4  
  
Injection pump  
Pump designation : PE8H120/320LS15  
EP type number : 0 412 628 003  
  
Governor  
Governor design. : RE36 (FD 66322 - FD 76319)  
Governor no. : 0 421 890 369

Cust. part No. : 0250745602

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 442 LA

## TEST BENCH REQUIREMENTS

Inlet line : 3.2 ELAB  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 082  
  
Inlet press. bar : 3.0  
Tolerance bar : ± 0.1  
  
Test nozzle holde  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 089  
  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 7.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

---

### (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

#### TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min<sup>-1</sup>: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

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ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min<sup>-1</sup>: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min<sup>-1</sup>: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

### (C) INJECTION PUMP WITH POSITIONER

#### TEST POINT V1

Rated speed rpm : 750  
Uact V : 2.800  
Prestroke solenoid  
Stroke mm : 7.40  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 342.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0  
FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 950  
Uact V : 2.900  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 329.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 6.0

---

Rated speed rpm : 550  
Uact V : 2.700  
Prestroke solenoid  
Stroke mm : 9.50

Del. quantity  
cm<sup>3</sup>/1000 strokes : 349.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

---

Rated speed rpm : 630  
Uact V : 2.000  
Prestroke solenoid  
Stroke mm : 5.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 203.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

#### TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt : +- 0.060  
Check tolerance  
Volt : +- 0.060  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 1.900  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 108.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.06.97  
Test oil : ISO 4113

Combination No. : 0 402 746 603

Injection pump  
Pump designation : PES6P120A320RS7359  
EP type number : 0 412 726 925

Governor  
Governor design. : RQ300/1050PA999-7  
Governor no. : 0 421 801 799

Cust. part No. : CCEP 5153 66-224

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIHR062045 A41  
Power KW : 188.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.70  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.25  
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

°NW after s.o.d. : -0.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## CRT ZERO POSITION

Rack travel in mm : 12.40  
Tolerance mm : ± 0.05

## BASIC SETTING



Rated speed rpm	:	600
Tolerance mm	:	± 0.05
Del. quantity cm <sup>3</sup> /1000 strokes	:	197.0
Tolerance cm <sup>3</sup> /1000 strokes	:	± 1.0
Check tolerance cm <sup>3</sup> /1000s.	:	± 4.0
Spreed		
Tolerance cm <sup>3</sup> /1000 strokes	:	5.0
Check tolerance cm <sup>3</sup> /1000s.	:	9.0

Rated speed rpm	:	275
Rack travel in mm	:	-6.70
Tolerance mm	:	± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	:	36.0
Tolerance cm <sup>3</sup> /1000 strokes	:	± 2.0
Check tolerance cm <sup>3</sup> /1000s.	:	± 5.0
Spreed		
Tolerance cm <sup>3</sup> /1000 strokes	:	8.0
Check tolerance cm <sup>3</sup> /1000s.	:	12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1145
guide sleeve travel mm	:	6.55
Tolerance mm	:	± 0.15
Rated speed rpm	:	275
guide sleeve travel mm	:	1.75
Tolerance mm	:	± 0.20
Rated speed rpm	:	1050
guide sleeve travel mm	:	6.00
Tolerance mm	:	± 0.10

Rated speed rpm	:	594
guide sleeve travel mm	:	5.11
Tolerance mm	:	± 0.10
Rated speed rpm	:	720
guide sleeve travel mm	:	6.00
Tolerance mm	:	± 0.10
Rated speed rpm	:	1380
guide sleeve travel mm	:	11.50
Tolerance mm	:	± 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	109
Rated speed rpm	:	800
Rack travel in mm	:	20.00
Tolerance mm	:	± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	600
Aneroid pressure hPa	:	1000
Del. quantity cm <sup>3</sup> /1000 strokes	:	197.0
Tolerance cm <sup>3</sup> /1000 strokes	:	± 1.0
Check tolerance cm <sup>3</sup> /1000s.	:	± 4.0
Spreed		
Tolerance cm <sup>3</sup> /1000 strokes	:	5.0
Check tolerance cm <sup>3</sup> /1000s.	:	9.0

CONTROL LEVER

control lever position degree	:	276.0
tolerance degree	:	± 4.0
RATED SPEED		
rack travel mm	:	-1.00
Rated speed rpm	:	1130
Tolerance 1/min	:	± 15
rack travel mm	:	-8.40
Rated speed rpm	:	1260

Tolerance 1/min : +- 5  
rack travel mm : -11.90  
Tolerance mm : +- 0.50  
Rated speed rpm : 1375

---

#### LOW IDLE

control lever  
position degree : 254.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. : < -4.80

#### Testing:

Rated speed rpm : 275  
rack travel mm : -6.70  
Tolerance mm : +- 0.10

rack travel mm : -10.40  
Rated speed rpm : 465  
Tolerance 1/min : +- 20

---

#### TORQUE CONTROL

Rated speed rpm : 600  
Tolerance mm : +- 0.05

Rated speed rpm : 1050  
Tolerance mm : +- 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : -1.75  
Tolerance mm : +- 0.20

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 220

rack travel mm : -0.85  
Tolerance mm : +- 0.15  
Pressure hPa : 160  
rack travel mm : -1.25  
Tolerance mm : +- 0.05

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 195

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 215

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 19.0

---

#### LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : -6.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.06.97  
Test oil : ISO 4113

Combination No. : 0 402 746 634

Injection pump  
Pump designation : PES6P120A720LS7262  
: -1  
EP type number : 0 412 726 918

Governor  
Governor design. : RQV350...950PA1348  
Governor no. : 0 421 814 196

Cust. part No. : 0240746302

Customer-spec. information  
Customer : MTU  
Motor : 6R183-02  
Power KW : 305.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : +- 0.1

Overflow quantity  
min. l/h : 170  
Tolerance l/h : +- 20.0

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm. : 4.05  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 20.50  
Tolerance mm : +- 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

## Start of delivery mark

Tolerance : +- 0.10  
Check  
tolerance °NW : +- 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.20

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.10

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1008

guide sleeve  
travel mm : 8.39  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350

guide sleeve  
travel mm : 2.02  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 486

guide sleeve  
travel mm : 3.45  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1220

guide sleeve

travel mm : 11.50

Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1069

Rack travel in mm : 12.20

Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950

Aneroid pressure

hPa : 1400

Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever

position degree : 119.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.20

Rated speed rpm : 995

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1085

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1250

##### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
CRT mm min. :  $>$  7.40

Testing:

Rated speed rpm : 350  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1400  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 7.80  
Tolerance mm :  $\pm$  0.15

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 400  
rack travel mm : 8.85  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 850  
rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.15

---

Start interlock

Rated speed rpm :  $>$  240  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  220  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1400  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 301.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 340.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  18.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.06.97  
Test oil : ISO 4113

Combination No. : 0 402 776 840

Injection pump  
Pump designation : PES6P120A720LS7440  
EP type number : 0 412 726 971

Governor  
Governor design. : RSV350...750POA520  
: -1  
Governor no. : 0 421 833 262

Cust. part No. : 0270749602

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM447 A  
Power KW : 180.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : +- 0.1

Overflow quantity  
min. l/h : 225  
Tolerance l/h : +- 20.0

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 5.00  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm : +- 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

## Start of delivery mark

Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 15.00



Tolerance mm	: $\pm$ 0.05
<hr/>	
Del. quantity cm <sup>3</sup> /1000 strokes	: 230.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: $\pm$ 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: $\pm$ 4.0
<hr/>	
Spread	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 9.0
<hr/>	

Rated speed rpm	: 350
<hr/>	
Rack travel in mm	: 5.30
Tolerance mm	: $\pm$ 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 17.0
Tolerance cm <sup>3</sup> /1000 strokes	: $\pm$ 3.0
Check tolerance cm <sup>3</sup> /1000S.	: $\pm$ 6.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: $\pm$ 0.20
<hr/>	
governor spring pre-tension click setting x	: 0.75

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 230.0
Tolerance cm <sup>3</sup> /1000 strokes	: $\pm$ 1.0
Check tolerance cm <sup>3</sup> /1000S.	: $\pm$ 4.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

---

#### CONTROL LEVER

control lever position degree	: 77.0
tolerance degree	: $\pm$ 4.0

#### ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 750
rack travel mm	: 14.00
<hr/>	
Rated speed rpm	: 785
Tolerance 1/min	: $\pm$ 4
rack travel mm	: 4.00
<hr/>	
rack travel mm	: 0.85
Tolerance mm	: $\pm$ 0.55
Rated speed rpm	: 850

Rated speed rpm	: 751
rack travel mm	: 14.00

Rated speed rpm	: 786
Tolerance 1/min	: $\pm$ 4
rack travel mm	: 4.00

rack travel mm	: 0.85
Tolerance mm	: $\pm$ 0.55
Rated speed rpm	: 850

Rated speed rpm	: 752
rack travel mm	: 14.00

Rated speed rpm	: 787
Tolerance 1/min	: $\pm$ 4
rack travel mm	: 4.00

rack travel mm	: 0.85
Tolerance mm	: $\pm$ 0.55
Rated speed rpm	: 850

Rated speed rpm : 753  
rack travel mm : 14.00

Rated speed rpm : 788  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 850

Rated speed rpm : 754  
rack travel mm : 14.00

Rated speed rpm : 789  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 850

Rated speed rpm : 755  
rack travel mm : 14.00

Rated speed rpm : 790  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 850

#### LOW IDLE

control lever  
position degree : 62.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.30  
Tolerance mm : + 0.10

rack travel mm : > 2.00  
Rated speed rpm : 380  
Tolerance 1/min : + 30

#### SET IDLE AUXILIARY SPRING

Rated speed rpm : 100  
rack travel mm : 2.00

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 15.00  
Tolerance mm : + 0.05

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 16.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 19.0

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.30  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.11.96

Test oil : ISO 4113

Combination No. : 0 402 946 014

Injection pump

Pump designation : PES6P120A72CLS8037

EP type number : 0 412 926 024

Governor

Governer design. : RQV250...1050PA1236K

Governer no. : 0 421 815 970

Cust. part No. : 1370101

Customer-spec. information

Customer : SCANIA

Motor : DSC1202

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 85

Tolerance l/h : ± 10.0

Test nozzle holde

assembly : 1 688 901 104

Opening pressure

bar : 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.40

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 180.00

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 775

---

Rack travel in mm : 14.05  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 330.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

Rated speed rpm : 250

Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1116  
guide sleeve  
travel mm : 10.09  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.79  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 644  
guide sleeve  
travel mm : 4.47

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 290  
guide sleeve  
travel mm : 2.62  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1170

Rack travel in mm : 12.10  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 775  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 330.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

##### CONTROL LEVER

control lever  
position degree : 63.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 12.10  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1180  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 17.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150  
CRT mm min. :  $>$  7.30

#### Testing:

Rated speed rpm : 250  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.30

Rated speed rpm : 275

---

#### TORQUE CONTROL

Rated speed rpm : 775  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 675  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.30

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 775  
Pressure hPa : 1500  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 775  
Pressure hPa : -  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 775  
Pressure hPa : 300  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 610  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  170

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  190

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 319.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1050

Del. quantity  
cm3/1000 strokes : 272.0  
Tolerance  
cm3/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm3/1000S. :  $\pm$  8.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 675  
Del. quantity  
cm3/1000 strokes : 323.0  
Tolerance  
cm3/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm3/1000S. :  $\pm$  10.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 192.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm3/1000 strokes : 210.0  
Tolerance  
cm3/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm3/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250  
Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm3/1000 strokes : 19.0  
Tolerance  
cm3/1000 strokes :  $\pm$  3.0

Check tolerance  
cm3/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.03.97

Test oil : ISO 4113

Combination No. : 0 402 946 015

Injection pump  
Pump designation : PES6P120A32ORS8038  
EP type number : 0 412 926 025

Governor  
Governor design. : RQV250...1000PA1239  
Governor no. : 0 421 814 157

Cust. part No. : 1383795

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 913

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 105  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.70  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 7.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1057  
guide sleeve  
travel mm : 7.89  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.33  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 748  
guide sleeve  
travel mm : 6.17  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 322  
guide sleeve  
travel mm : 2.58  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 372  
guide sleeve  
travel mm : 3.27  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 470  
guide sleeve  
travel mm : 4.09  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1470  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1260

Rack travel in mm : 11.40  
Tolerance mm :  $\pm$  1.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 57.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 120.0



tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 11.70

Rated speed rpm : 1045

Tolerance 1/min :  $\pm$  5

Check

speed 1/min :  $\pm$  10

rack travel mm : 4.00

Rated speed rpm : 1235

Tolerance 1/min :  $\pm$  15

Check

speed 1/min :  $\pm$  20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1350

#### LOW IDLE

control lever

position degree : 37.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 25.0

tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. :  $>$  9.80

Testing:

Rated speed rpm : 250

rack travel mm : 7.50

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

#### TORQUE CONTROL

Rated speed rpm : 600

rack travel mm : 12.70

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000

rack travel mm : 12.70

Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE

#### COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500

Pressure hPa : 1500

rack travel mm : 12.70

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : 12.80

Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 380

rack travel mm : 11.25

Tolerance mm :  $\pm$  0.15

Pressure hPa : 750

rack travel mm : 12.15

Tolerance mm :  $\pm$  0.05

#### Start interlock

Rated speed rpm :  $<$  170

Rated speed rpm :  $>$  100

Check

speed 1/min :  $<$  190

Check

speed 1/min :  $>$  80

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500

Rated speed rpm : 1000

Del. quantity

cm<sup>3</sup>/1000 strokes : 290.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  8.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 250  
Rack travel in mm : 7.50  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.03.97  
Test oil : ISO 4113

Combination No. : 0 402 946 016

Injection pump  
Pump designation : PES6P120A320RS8038  
EP type number : 0 412 926 025

Governor  
Governor design. : RQV250...1000PA1239  
: -1  
Governor no. : 0 421 814 158

Cust. part No. : 1369528

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 912

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -360  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.80  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 292.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 7.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1057  
guide sleeve  
travel mm : 7.89  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.33  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 748  
guide sleeve  
travel mm : 6.17  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 322  
guide sleeve  
travel mm : 2.58  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 372  
guide sleeve  
travel mm : 3.27  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 470  
guide sleeve  
travel mm : 4.09  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1470  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1290

Rack travel in mm : 11.30  
Tolerance mm :  $\pm$  1.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 292.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 57.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 120.0

tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 11.80

Rated speed rpm : 1045

Tolerance 1/min :  $\pm$  5

Check

speed 1/min :  $\pm$  10

rack travel mm : 4.00

Rated speed rpm : 1225

Tolerance 1/min :  $\pm$  15

Check

speed 1/min :  $\pm$  20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1350

#### LOW IDLE

control lever

position degree : 87.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 25.0

tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. :  $>$  9.70

Testing:

Rated speed rpm : 250

rack travel mm : 7.50

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

#### TORQUE CONTROL

Rated speed rpm : 600

rack travel mm : 12.80

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000

rack travel mm : 12.80

Tolerance mm :  $\pm$  0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500

Pressure hPa : 1500

rack travel mm : 12.80

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : 10.80

Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 250

rack travel mm : 11.30

Tolerance mm :  $\pm$  0.15

Pressure hPa : 620

rack travel mm : 12.30

Tolerance mm :  $\pm$  0.05

##### Start interlock

Rated speed rpm :  $>$  100

Rated speed rpm :  $<$  170

Check

speed 1/min :  $>$  80

Check

speed 1/min :  $<$  190

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500

Rated speed rpm : 1000

Del. quantity

cm<sup>3</sup>/1000 strokes : 282.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  9.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 250  
  
Rack travel in mm : 7.50  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 22.03.96

Test oil : ISO 4113

Combination No. : 0 402 946 017

## Injection pump

Pump designation : PES6P120A72ORS8039

EP type number : 0 412 926 026

## Governor

Governer design. : RQV250...950PA1243

Governer no. : 0 421 814 162

Cust. part No. : 1374808

## Customer-spec. information

Customer : SCANIA

Motor : DSC 11.79

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 115

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly

: 1 688 901 104

Opening pressure  
bar

: 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.15

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order

: 1- 5- 3- 6- 2-

: 4

Phasing

: 0-60-120-180-240

: -300

Tolerance

: ± 0.50

Check

tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no.

: 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.90  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

Rated speed rpm : 250

Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1008  
guide sleeve  
travel mm : 8.61  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.33  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 732  
guide sleeve  
travel mm : 6.35  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 470  
guide sleeve  
travel mm : 4.09  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1260  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1165

Rack travel in mm : 10.90  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

##### CONTROL LEVER

control lever  
position degree : 55.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.90  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00



Rated speed rpm : 1115  
Tolerance 1/min : + 15  
Check  
speed 1/min : + 20

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1200

---

#### LOW IDLE

control lever  
position degree : 81.0  
tolerance degree : + 4.0

control lever  
position degree : 17.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 150  
CRT mm min. : > 8.10

#### Testing:

Rated speed rpm : 250  
rack travel mm : 5.60  
Tolerance mm : + 0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 11.90  
Tolerance mm : + 0.05

Rated speed rpm : 950  
rack travel mm : 11.90  
Tolerance mm : + 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.90  
Tolerance mm : + 0.05

Rated speed rpm : 500

D07

Pressure hPa : -  
rack travel mm : 9.20  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 350  
rack travel mm : 10.30  
Tolerance mm : + 0.15

Pressure hPa : 600  
rack travel mm : 11.40  
Tolerance mm : + 0.05

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 170

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 190

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 950  
Del. quantity  
cm3/1000 strokes : 282.0  
Tolerance  
cm3/1000 strokes : + 4.0  
Check tolerance  
cm3/1000S. : + 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 197.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : + 0.50

Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 24.0

---

#### LOW IDLE

Rated speed rpm : 250  
  
Rack travel in mm : 5.60  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.03.97  
Test oil : ISO 4113

Combination No. : 0 402 946 020

Injection pump  
Pump designation : PES6P120A320RS8038  
EP type number : 0 412 926 025

Governor  
Governor design. : RQV250...1000PA1239  
: -2  
Governor no. : 0 421 814 168

Cust. part No. : 1369545

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 9.11

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 115  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.30  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 277.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 7.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1057  
guide sleeve  
travel mm : 7.89  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.33  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 748  
guide sleeve  
travel mm : 6.17  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 470  
guide sleeve  
travel mm : 4.09  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1470  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1310

Rack travel in mm : 11.40  
Tolerance mm :  $\pm$  1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 277.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### CONTROL LEVER

control lever  
position degree : 56.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.30  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10  
rack travel mm : 4.00

Rated speed rpm : 1225  
Tolerance 1/min : + 15  
Check  
speed 1/min : + 20

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 87.0  
tolerance degree : + 4.0

control lever  
position degree : 24.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : > 9.70

#### Testing:

Rated speed rpm : 250  
rack travel mm : 7.20  
Tolerance mm : + 0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 12.30  
Tolerance mm : + 0.05

Rated speed rpm : 1000  
rack travel mm : 12.30  
Tolerance mm : + 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.30  
Tolerance mm : + 0.05

Rated speed rpm : 500

Pressure hPa : -  
rack travel mm : 10.80  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 330  
rack travel mm : 11.20  
Tolerance mm : + 0.15

Pressure hPa : 600  
rack travel mm : 11.90  
Tolerance mm : + 0.05

---

#### Start interlock

Rated speed rpm : < 170  
Rated speed rpm : > 100

Check  
speed 1/min : < 190  
Check  
speed 1/min : > 80

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 7.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : + 0.50

Del. quantity  
cm<sup>3</sup>/1000 strokes : 275.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 24.0

---

LOW IDLE

Rated speed rpm : 250  
  
Rack travel in mm : 7.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.06.97  
Test oil : ISO 4113  
Combination No. : 0 400 866 198  
Injection pump  
Pump designation : PES6A100D320/3RS2763  
EP type number : 0 410 806 006  
Governor  
Governor design. : RSV400...950A0C2238  
: -4R  
Governor no. : 0 420 233 331

Cust. part No. :

Customer-spec. information  
Customer : CDC  
Motor : 6 CT 8.3  
Power KW : 145.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 12.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

Speed

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.20

Tolerance mm : ± 0.10

Del. quantity  
cm3/1000 strokes : 15.0

Tolerance  
cm3/1000 strokes : ± 2.0

Check tolerance  
cm3/1000S. : ± 4.5

Spread  
Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 2.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm3/1000 strokes : 121.5  
Tolerance  
cm3/1000 strokes : ± 1.0  
Check tolerance  
cm3/1000S. : ± 3.5  
Spread  
Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 6.5

#### CONTROL LEVER

control lever  
position degree : 96.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 11.10  
Rated speed rpm : 995  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1070  
Tolerance 1/min : ± 5

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1200

rack travel mm : 4.00  
Rated speed rpm : 1085  
Tolerance 1/min : ± 15

#### LOW IDLE

control lever  
position degree : 79.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 4.70  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 400  
rack travel mm : 5.20  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 470  
Tolerance 1/min : ± 30

#### TORQUE CONTROL



Rated speed rpm : 950  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 305  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 220  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.06.97  
Test oil : ISO 4113

Combination No. : 0 400 866 236

Injection pump  
Pump designation : PES6A100D320/3RS2763  
EP type number : 0 410 806 006

Governor  
Governor design. : RSV400...950A0C928R  
Governor no. : 0 420 233 355

Cust. part No. : 3282448

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3/195HP

## TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 28.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 12.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

Rated speed rpm : 400

Rack travel in mm : 5.20

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 2.50

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

#### CONTROL LEVER

control lever  
position degree : 96.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 11.10  
Rated speed rpm : 995  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1070  
Tolerance 1/min : ± 5

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1200

rack travel mm : 4.00  
Rated speed rpm : 1085  
Tolerance 1/min : ± 15

---

#### LOW IDLE

control lever  
position degree : 79.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 4.70  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 400  
rack travel mm : 5.20  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 470  
Tolerance 1/min : ± 30

---

#### TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 305  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 220  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.97  
Test oil : ISO 4113  
  
Combination No. : 0 400 836 044  
  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
: -2  
EP type number : 9 410 230 028  
  
Governor  
Governor design. : RQV350...1200AB1245  
: -1R  
Governor no. : 0 420 213 132  
  
Cust. part No. :

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CT8.3  
Power KW : 138.0

## TEST BENCH REQUIREMENTS

Inlet line : 2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1 417 413 047  
  
Inlet press. bar : 2.0  
Tolerance bar : + 0.1  
  
Test nozzle holder  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
  
Test lines : 1 680 750 014

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300

## Start of delivery mark

°NW after s.o.d. : 10.00  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1200  
  
Rack travel in mm : 10.00  
Tolerance mm : + 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 102.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
  
Speed  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

---

Rated speed rpm : 350

Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm3/1000 strokes : 19.0  
Tolerance  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm3/1000 strokes : 5.5  
Check tolerance  
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1200  
guide sleeve  
travel mm : 6.90

Rated speed rpm : 250  
guide sleeve  
travel mm : 0.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.25  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 2.15  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1350  
guide sleeve  
travel mm : 8.45  
Tolerance mm :  $\pm$  0.25

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1250

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 102.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 8.0

---

CONTROL LEVER

control lever  
position degree : 44.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 9.00  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1330  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1400

---

LOW IDLE

control lever  
position degree : 13.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 9.00

Testing:

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 540  
Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 290

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 300

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 161.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.08.96  
Test oil : ISO 4113

Combination No. : 0 400 844 047

Injection pump  
Pump designation : PES4A90D410RS2294  
EP type number : 0 410 894 011

Governor  
Governor design. : RQV300...1425AB740L  
Governor no. : 0 420 212 037

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 314  
Power KW : 62.5

## TEST BENCH REQUIREMENTS

Inlet line : 1.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Del. quantity  
cm<sup>3</sup>/1000 strokes : 63.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

## Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

Rated speed rpm : 300

Rack travel in mm : 7.30  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0



Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 550  
guide sleeve  
travel mm : 2.85  
Tolerance mm : +- 0.15

Rated speed rpm : 1460  
guide sleeve  
travel mm : 8.50  
Tolerance mm : +- 0.10

Rated speed rpm : 950  
guide sleeve  
travel mm : 5.35  
Tolerance mm : +- 0.15

Rated speed rpm : 775  
guide sleeve  
travel mm : 4.35  
Tolerance mm : +- 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 0.95  
Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1420

Rack travel in mm : 16.50  
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 63.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 2.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 8.70  
Rated speed rpm : 1460  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1550  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1700

LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 100  
CRT mm min. : > 8.80

Testing:

Rated speed rpm : 300  
rack travel mm : 7.30  
Tolerance mm : +- 0.10

Rated speed rpm : 445

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220  
  
Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 7.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.06.95  
Test oil : ISO 4113  
  
Combination No. : 0 400 844 094  
  
Injection pump  
Pump designation : PES4A90D410RS2666  
EP type number : 0 410 894 029  
  
Governor  
Governor design. : RQV300...1400AB1065  
                  : -12L  
Governor no. : 0 420 212 207

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364  
Power KW : 61.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holde  
assembly : 0 681 343 009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 015  
  
Outside diameter : 6.0

D25

x inside diameter : 1.5  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Firing order : 1- 3- 4- 2  
  
Phasing : 0-90-180-270

## BASIC SETTING

Rated speed rpm : 1400  
  
Rack travel in mm : 10.55  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm3/1000 strokes : 59.5  
  
Tolerance  
cm3/1000 strokes : ± 0.5  
  
Check tolerance  
cm3/1000S. : ± 2.5  
  
Spreed  
  
Tolerance  
cm3/1000 strokes : 3.0  
  
Check tolerance  
cm3/1000S. : 5.0  
  
Rated speed rpm : 300  
  
Rack travel in mm : 8.70  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500  
guide sleeve  
travel mm : 8.55  
Tolerance mm : ± 0.05

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.05  
Tolerance mm : ± 0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 2.55  
Tolerance mm : ± 0.25

Rated speed rpm : 750  
guide sleeve  
travel mm : 4.20  
Tolerance mm : ± 0.10

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

##### CONTROL LEVER

control lever  
position degree : 116.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 9.50  
Rated speed rpm : 1445  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1550  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1700

##### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 10.20

##### Testing:

Rated speed rpm : 300  
rack travel mm : 8.70  
Tolerance mm : ± 0.10

Rated speed rpm : 610

##### TORQUE CONTROL

Dimension a mm : 1.00  
Rated speed rpm : 1400  
rack travel mm : 10.55  
Tolerance mm : ± 0.05

Rated speed rpm : 475  
rack travel mm : 11.55  
Tolerance mm : ± 0.05

Rated speed rpm : 850  
rack travel mm : 11.00  
Tolerance mm : ± 0.10

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 475  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 46.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 49.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

---

Rated speed rpm : 100  
rack travel mm : 17.20  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 8.70  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.97  
Test oil : ISO 4113  
Combination No. : 0 400 846 336  
Injection pump  
Pump designation : PES6A90D410RS2293W  
EP type number : 0 410 896 049  
Governor  
Governor design. : RQV300...1425AB740L  
Governor no. : 0 420 212 037

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM352  
Power KW : 115.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 922 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test Lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1400  
Rack travel in mm : 10.90  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 72.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 2.5  
Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

Rated speed rpm : 300

Rack travel in mm : 7.60

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 550  
guide sleeve  
travel mm : 2.85  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 1460  
guide sleeve  
travel mm : 8.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
guide sleeve  
travel mm : 5.35  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 775  
guide sleeve  
travel mm : 4.35  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.45  
Tolerance mm :  $\pm$  0.75

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1420

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 72.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

##### CONTROL LEVER

control lever  
position degree : 114.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 9.90  
Rated speed rpm : 1460  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1575  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1700

##### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 9.10

Testing:

Rated speed rpm : 300  
rack travel mm : 7.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 445

TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.05

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 7.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.97  
Test oil : ISO 4113

Combination No. : 0 400 863 020

Injection pump  
Pump designation : PES3A95D410/3RS2905  
EP type number : 0 410 893 996

Governor  
Governor design. : RSV325...1250A50858L  
Governor no. : 0 420 232 621

Cust. part No. : 0423 1592 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F3L912/913\_NEU  
Power KW : 40.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : 8.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.25

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 10.35  
Rated speed rpm : 1295  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1530

rack travel mm : 4.00  
Rated speed rpm : 1380  
Tolerance 1/min : ± 15

---

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

##### Testing:

Rated speed rpm : 325  
rack travel mm : 8.50  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 510  
Tolerance 1/min : ± 30

---

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.97  
Test oil : ISO 4113  
  
Combination No. : 0 400 863 021  
  
Injection pump  
Pump designation : PES3A95D410/3RS2905  
EP type number : 0 410 893 996

Governor  
Governor design. : RSV325...900A1C359L  
Governor no. : 0 420 232 622

Cust. part No. : 0423 1593 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F3L912/913\_NEU  
Power KW : 40.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : 7.90

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.25

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

#### CONTROL LEVER

control lever  
position degree : 96.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 10.80  
Rated speed rpm : 895  
Tolerance 1/min. : ± 5

rack travel mm : 4.00  
Rated speed rpm : 940  
Tolerance 1/min : ± 10

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1110

rack travel mm : 4.00  
Rated speed rpm : 960  
Tolerance 1/min : ± 15

---

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 7.40  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

#### Testing:

Rated speed rpm : 325  
rack travel mm : 7.90  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 440  
Tolerance 1/min : ± 30

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 7.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 18.06.97

Test oil : ISO 4113

Combination No. : 0 400 863 024

## Injection pump

Pump designation : PES3A95D410/3RS2905

EP type number : 0 410 893 996

## Governor

Governor design. : RSV325...1250A5C917L

Governor no. : 0 420 232 639

Cust. part No. : 0423 2328 KY

## Customer-spec. information

Customer : KHD-DMI

Motor : F3L912

Power KW : 44.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly

: 0 681 343 009

Opening pressure  
bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35

Tolerance mm : ± 0.05

Del. quantity

cm<sup>3</sup>/1000 strokes : 76.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
cm3/1000 strokes : 3.5

---

Check tolerance  
cm3/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : 8.50  
Tolerance mm : ± 0.10

Del. quantity  
cm3/1000 strokes : 11.5

Tolerance  
cm3/1000 strokes : ± 2.0

Check tolerance  
cm3/1000S. : ± 4.5

Spread  
Tolerance

cm3/1000 strokes : 5.5  
Check tolerance

cm3/1000S. : 9.9

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.25

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm3/1000 strokes : 76.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0

Spread  
Tolerance

cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 10.35  
Rated speed rpm : 1295  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1530

rack travel mm : 4.00  
Rated speed rpm : 1380  
Tolerance 1/min : ± 15

---

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

##### Testing:

Rated speed rpm : 325  
rack travel mm : 8.50  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 510  
Tolerance 1/min : ± 30

---

##### TORQUE CONTROL



Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05  
  
Rated speed rpm : 500

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 17.00  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.9

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.97  
Test oil : ISO 4113

Combination No. : 0 400 864 099

Injection pump  
Pump designation : PES4A95D410/3RS2789  
EP type number : 0 410 894 995

Governor  
Governor design. : RSV325...1250A5C858L  
Governor no. : 0 420 232 621

Cust. part No. : 0423 1595 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F4L912/913\_NEU  
Power KW : 54.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : +- 0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 11.5

Tolerance

cm<sup>3</sup>/1000 strokes : +- 2.0

Check tolerance

cm<sup>3</sup>/1000S. : +- 4.5

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance

cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever

position degree : FREE

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : +- 0.20

governor spring

pre-tension

click setting x : 4.25

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure

hPa : -

Del. quantity

cm<sup>3</sup>/1000 strokes : 76.0

Tolerance

cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance

cm<sup>3</sup>/1000S. : +- 3.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

##### CONTROL LEVER

control lever

position degree : 107.0

tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 10.35

Rated speed rpm : 1295

Tolerance 1/min : +- 5

rack travel mm : 4.00

Rated speed rpm : 1355

Tolerance 1/min : +- 15

rack travel mm : 0.85

Tolerance mm : +- 0.55

Rated speed rpm : 1530

rack travel mm : 4.00

Rated speed rpm : 1350

Tolerance 1/min : +- 15

---

##### LOW IDLE

control lever

position degree : 74.0

tolerance degree : +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 325

rack travel mm : 8.00

Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

##### Testing:

Rated speed rpm : 325

rack travel mm : 8.50

Tolerance mm : +- 0.10

rack travel mm : 2.00

Rated speed rpm : 510

Tolerance 1/min : +- 30

---

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.97  
Test oil : ISO 4113  
  
Combination No. : 0 400 864 100  
  
Injection pump  
Pump designation : PES4A95D410/3RS2905  
EP type number : 0 410 894 995

Governor  
Governor design. : RSV325...9C0A1C859L  
Governor no. : 0 420 232 622

Cust. part No. : 0423 1596 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F4L912/913\_NEU  
Power KW : 54.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holder  
assembly : 0 681 343 009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 014  
  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 3- 4- 2  
  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 850  
  
Rack travel in mm : 11.80  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 7.90

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 300

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 96.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 10.80  
Rated speed rpm : 895  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 940  
Tolerance 1/min : ± 10

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1110

rack travel mm : 4.00  
Rated speed rpm : 960  
Tolerance 1/min : ± 15

##### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 7.40  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

##### Testing:

Rated speed rpm : 325  
rack travel mm : 7.90  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 440  
Tolerance 1/min : ± 30

##### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 7.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.97  
Test oil : ISO 4113

Combination No. : 0 400 864 107

Injection pump  
Pump designation : PES4A95D410/3RS2913  
EP type number : 0 410 894 986

Governor  
Governor design. : RSV325...900A1C359L  
Governor no. : 0 420 232 622

Cust. part No. : 0423 2225 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F4L912/Neu.compr

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-90-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.80  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 80.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0

Speed

Tolerance  
cm3/1000 strokes : 3.5



Check tolerance cm3/1000S.	:	8.0
-------------------------------	---	-----

Rated speed rpm	:	325
-----------------	---	-----

Rack travel in mm	:	7.90
Tolerance mm	:	+/- 0.10
Del. quantity cm3/1000 strokes	:	11.5
Tolerance cm3/1000 strokes	:	+/- 2.0
Check tolerance cm3/1000S.	:	+/- 4.5
Spread Tolerance cm3/1000 strokes	:	5.5
Check tolerance cm3/1000S.	:	9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	:	FREE
Rated speed rpm	:	800
Rack travel in mm	:	0.50
Tolerance mm	:	+/- 0.20
governor spring pre-tension click setting x	:	4.25

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	850
Aneroid pressure hPa	:	-
Del. quantity cm3/1000 strokes	:	80.0
Tolerance cm3/1000 strokes	:	+/- 1.0
Check tolerance cm3/1000S.	:	+/- 3.0
Spread Tolerance cm3/1000 strokes	:	3.5
Check tolerance cm3/1000S.	:	8.0

#### CONTROL LEVER

control lever position degree	:	96.0
tolerance degree	:	+/- 4.0

#### RATED SPEED

rack travel mm	:	10.80
Rated speed rpm	:	895
Tolerance 1/min	:	+/- 5

rack travel mm	:	4.00
Rated speed rpm	:	940
Tolerance 1/min	:	+/- 10

rack travel mm	:	0.85
Tolerance mm	:	+/- 0.55
Rated speed rpm	:	1110

rack travel mm	:	4.00
Rated speed rpm	:	960
Tolerance 1/min	:	+/- 15

#### LOW IDLE

control lever position degree	:	75.0
tolerance degree	:	+/- 4.0

#### Setting point w/out bumper spring

Rated speed rpm	:	325
rack travel mm	:	7.40
Tolerance mm	:	+/- 0.10

Rated speed rpm	:	100
-----------------	---	-----

CRT mm min.	:	> 19.50
-------------	---	---------

#### Testing:

Rated speed rpm	:	325
rack travel mm	:	7.90
Tolerance mm	:	+/- 0.10

rack travel mm	:	2.00
Rated speed rpm	:	440
Tolerance 1/min	:	+/- 30

#### TORQUE CONTROL

Rated speed rpm	:	850
rack travel mm	:	11.80
Tolerance mm	:	+/- 0.05

Rated speed rpm : 500

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 7.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spræd  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.97

Test oil : ISO 4113

Combination No. : 0 400 864 109

Injection pump

Pump designation : PES4A95D410/3RS2789

EP type number : 0 410 894 995

Governor

Governor design. : RSV325...1250A5C917L

Governor no. : 0 420 232 639

Cust. part No. : 0423 2332 KY

Customer-spec. information

Customer : KHD-DMI

Motor : F4L912/913

Power KW : 59.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder assembly

: 0 681 343 009

Opening pressure bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35

Tolerance mm : ± 0.05

Del. quantity

cm<sup>3</sup>/1000 strokes : 76.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000s. : ± 3.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.25

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 10.35  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1530

rack travel mm : 4.00  
Rated speed rpm : 1380  
Tolerance 1/min :  $\pm$  15

---

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.50

Testing:

Rated speed rpm : 325  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 510  
Tolerance 1/min :  $\pm$  30

---

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

---

# STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 17.00  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

# LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.06.97  
Test oil : ISO 4113  
  
Combination No. : 0 400 865 029  
  
Injection pump  
Pump designation : PES5A95D410/3RS2906  
EP type number : 0 410 895 971

Governor  
Governor design. : RSV325...900A1C859L  
Governor no. : 0 420 232 622

Cust. part No. : 0423 1599 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F5L912/913\_NEU  
Power KW : 67.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.60

Del. quantity  
cm3/1000 strokes : 11.5

Tolerance  
cm3/1000 strokes : +- 2.0

Check tolerance  
cm3/1000S. : +- 4.5

Spread  
Tolerance  
cm3/1000 strokes : 5.5

Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 2.75

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : -

Del. quantity  
cm3/1000 strokes : 70.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.0

Spread  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

#### CONTROL LEVER

control lever  
position degree : 91.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 10.50  
Rated speed rpm : 895  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 920  
Tolerance 1/min : +- 10

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1090

rack travel mm : 4.00  
Rated speed rpm : 940

#### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree : +- 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.10  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

#### Testing:

Rated speed rpm : 325  
rack travel mm : 8.60

rack travel mm : 2.00  
Rated speed rpm : 425  
Tolerance 1/min : +- 30

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 11.80  
Tolerance mm : +- 0.05

Rated speed rpm : 500

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm 0.75$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 7.5$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 10.0$

---

LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 8.60  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.5$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.97  
Test oil : ISO 4113

Combination No. : 0 400 866 223

Injection pump  
Pump designation : PES6A95D410/3RS2907  
EP type number : 0 410 896 884

Governor  
Governor design. : RSV325...900A1C859L  
Governor no. : 0 420 232 622

Cust. part No. : 0423 1602 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F6L912/913\_NEU  
Power KW : 81.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

## Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 7.90

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

## Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.25

### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

## Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

### CONTROL LEVER

control lever  
position degree : 96.0  
tolerance degree :  $\pm$  4.0

### RATED SPEED

rack travel mm : 10.80  
Rated speed rpm : 895

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 940

Tolerance 1/min :  $\pm$  10

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1110

rack travel mm : 4.00  
Rated speed rpm : 960

Tolerance 1/min :  $\pm$  15

### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 7.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

### Testing:

Rated speed rpm : 325  
rack travel mm : 7.90

rack travel mm : 2.00  
Rated speed rpm : 440

Tolerance 1/min :  $\pm$  30

### TORQUE CONTROL

Rated speed rpm : 850

rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05  
  
Rated speed rpm : 500

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 7.90  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.06.97  
Test oil : ISO 4113  
Combination No. : 0 400 873 042  
Injection pump  
Pump designation : PES3A95D32ORS2810  
EP type number : 0 410 893 997  
Governor  
Governor design. : RSV375...1175A2C897R  
Governor no. : 0 420 233 350

Cust. part No. : 8366 54717

## Customer-spec. information

Customer : SISU  
Motor : 320 DS  
Power KW : 55.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.3  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 2- 3

Phasing : 0-120-240  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 5.00

## BASIC SETTING

Rated speed rpm : 1175

Rack travel in mm : 10.75  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 86.5

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 375

Rack travel in mm : 4.40

Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 4.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 86.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### CONTROL LEVER

control lever  
position degree : 101.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 9.70  
Rated speed rpm : 1220  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1285  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1440

rack travel mm : 4.00  
Rated speed rpm : 1295  
Tolerance 1/min : +- 15

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 375  
rack travel mm : 3.80  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 375  
rack travel mm : 4.40  
Tolerance mm : +- 0.10

rack travel mm : 2.00

Rated speed rpm : 450  
Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 1175  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 990  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Rated speed rpm : 375  
Rack travel in mm : 4.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.08.96  
Test oil : ISO 4113

Combination No. : 0 400 874 218

Injection pump  
Pump designation : PES4A90D410RS2294  
EP type number : 0 410 894 011

Governor  
Governor design. : RSV350...1400A0C2006  
: L  
Governor no. : 0 420 232 395

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 314  
Power KW : 62.5

## TEST BENCH REQUIREMENTS

Inlet line : 1.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

F05

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

## BASIC SETTING

Rated speed rpm : 1380

Rack travel in mm : 10.45  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 64.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : +- 2.5

## Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

Rated speed rpm : 350

Rack travel in mm : 9.30  
 Tolerance mm : +- 0.10  
 Del. quantity  
 cm3/1000 strokes : 27.0  
 Tolerance  
 cm3/1000 strokes : +- 3.0  
 Check tolerance  
 cm3/1000S. : +- 5.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.0  
 Check tolerance  
 cm3/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800  
 Rack travel in mm : 0.50  
 Tolerance mm : +- 0.20

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1380  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm3/1000 strokes : 64.0  
 Tolerance  
 cm3/1000 strokes : +- 0.5  
 Check tolerance  
 cm3/1000S. : +- 2.5  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 3.0  
 Check tolerance  
 cm3/1000S. : 4.5

#### CONTROL LEVER

control lever  
 position degree : 115.0  
 tolerance degree : +- 4.0

RATED SPEED  
 rack travel mm : 9.40  
 Rated speed rpm : 1425

Tolerance 1/min : +- 5  
 rack travel mm : 4.40  
 Rated speed rpm : 1498  
 Tolerance 1/min : +- 8  
 rack travel mm : 1.00  
 Tolerance mm : +- 0.70  
 Rated speed rpm : 1600

#### LOW IDLE

control lever  
 position degree : 83.0  
 tolerance degree : +- 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 100  
 CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 350  
 rack travel mm : 9.30  
 Tolerance mm : +- 0.10

rack travel mm : 2.00  
 Rated speed rpm : 560  
 Tolerance 1/min : +- 30

Rated speed rpm : 650  
 CRT mm max. : < 1.00

#### TORQUE CONTROL

Rated speed rpm : 1380  
 rack travel mm : 10.45  
 Tolerance mm : +- 0.05

Rated speed rpm : 600  
 rack travel mm : 10.55  
 Tolerance mm : +- 0.10

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 15.00  
 Tolerance mm : +- 0.30



---

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 9.30

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 27.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 2.0

Check tolerance

cm<sup>3</sup>/1000S. : 4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.09.96  
Test oil : ISO 4113

Combination No. : 0 400 876 218

Injection pump  
Pump designation : PES6A90D410RS2293  
EP type number : 0 410 896 031

Governor  
Governor design. : RSV350...1400A0C1080  
: L  
Governor no. : 0 420 232 408

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 352  
Power KW : 92.0

## TEST BENCH REQUIREMENTS

Inlet line : 1.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

F08

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 9.75  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 63.5

Tolerance  
cm3/1000 strokes : ± 0.5

Check tolerance  
cm3/1000S. : ± 2.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

Rated speed rpm : 350

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 3.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 63.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : +- 2.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1570

rack travel mm : 4.00  
Rated speed rpm : 1525  
Tolerance 1/min : +- 15

rack travel mm : 8.70  
Rated speed rpm : 1450  
Tolerance 1/min : +- 5

##### LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 6.80  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

##### Testing:

rack travel mm : 2.00  
Rated speed rpm : 2775  
Tolerance 1/min : +- 2325

##### TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 9.75  
Tolerance mm : +- 0.05

Rated speed rpm : 600  
rack travel mm : 10.00  
Tolerance mm : +- 0.10

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 52.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 57.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.20  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 8.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 4.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.06.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 007

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV475...1100A0C881R  
Governor no. : F 002 A20 207

Cust. part No. : 3928597

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BTA  
Power KW : 122.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.20

Tolerance mm	: + 0.05
<hr/>	
Del. quantity cm3/1000 strokes	: 116.9
<hr/>	
Tolerance cm3/1000 strokes	: + 1.0
<hr/>	
Check tolerance cm3/1000S.	: + 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance cm3/1000S.	: 6.5
<hr/>	

Rated speed rpm	: 475
<hr/>	
Rack travel in mm	: 5.20
Tolerance mm	: + 0.10
Del. quantity cm3/1000 strokes	: 21.5
Tolerance cm3/1000 strokes	: + 2.0
Check tolerance cm3/1000S.	: + 4.5
Spreed	
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	: FREE
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
<hr/>	
governor spring pre-tension click setting x	: 3.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure hPa	: 1200
Del. quantity cm3/1000 strokes	: 116.9
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000S.	: + 3.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.5

#### CONTROL LEVER

control lever position degree	: 100.0
tolerance degree	: + 4.0

#### RATED SPEED

rack travel mm	: 12.20
Rated speed rpm	: 1155
Tolerance 1/min	: + 5

rack travel mm	: 6.50
Rated speed rpm	: 1215
Tolerance 1/min	: + 5

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1400

rack travel mm	: 6.50
Rated speed rpm	: 1215
Tolerance 1/min	: + 15

#### LOW IDLE

control lever position degree	: 80.0
tolerance degree	: + 4.0

Control lever difference Grad	: 20.0
tolerance degree	: + 6.0

#### Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 4.70
Tolerance mm	: + 0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 475  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10  
  
rack travel mm : 2.00  
Rated speed rpm : 550  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.20

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
  
Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 700  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.20  
  
Pressure hPa : 500  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.20

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800

Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

Aneroid pressure  
hPa : -

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.9  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  15.0

#### LOW IDLE

Rated speed rpm : 475  
  
Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.06.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 011

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV475...1100A0C888R  
Governor no. : F 002 A20 212

Cust. part No. : 3930164

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BTA  
Power KW : 124.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 7.50  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.65



Tolerance mm	: ± 0.05
<hr/>	
Del. quantity cm3/1000 strokes	: 116.0
<hr/>	
Tolerance cm3/1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm3/1000S.	: ± 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance cm3/1000S.	: 6.5
<hr/>	

Rated speed rpm	: 475
<hr/>	
Rack travel in mm	: 5.95
Tolerance mm	: ± 0.10
Del. quantity cm3/1000 strokes	: 20.6
Tolerance cm3/1000 strokes	: ± 2.0
Check tolerance cm3/1000S.	: ± 4.5
<hr/>	
Spreed	
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

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GUIDE SLEEVE POSITION

control lever position degree	: FREE
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
<hr/>	
governor spring pre-tension click setting x	: 2.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: 1200
Del. quantity cm3/1000 strokes	: 116.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 3.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.5

---

CONTROL LEVER

control lever position degree	: 94.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 12.70
Rated speed rpm	: 1115
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1185
Tolerance 1/min	: ± 15

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1300

rack travel mm	: 4.00
Rated speed rpm	: 1190
Tolerance 1/min	: ± 15

---

LOW IDLE

control lever position degree	: 75.0
tolerance degree	: ± 4.0

Control lever difference	
Grad	: 19.0
tolerance degree	: ± 6.0

Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 5.45
Tolerance mm	: ± 0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 475  
rack travel mm : 5.95  
Tolerance mm : +- 0.10  
  
rack travel mm : 2.00  
Rated speed rpm : 550  
Tolerance 1/min : +- 30

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 13.65  
Tolerance mm : +- 0.05

Rated speed rpm : 750

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.70  
Tolerance mm : +- 0.20

##### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 550  
rack travel mm : 12.50  
Tolerance mm : +- 0.20

Pressure hPa : 400  
rack travel mm : 11.85  
Tolerance mm : +- 0.20

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +- 4.0

#### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.9  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +- 3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : +- 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 10.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +- 15.0

#### LOW IDLE

Rated speed rpm : 475  
  
Rack travel in mm : 5.95  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.6  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +- 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.06.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 033

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV475...1050AOC911R  
Governor no. : F 002 A20 223

Cust. part No. : 3283692

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BT-155 PS/2100

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 7.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.40

Tolerance mm	: +- 0.05
<hr/>	
Del. quantity cm3/1000 strokes	: 113.0
<hr/>	
Tolerance cm3/1000 strokes	: +- 1.0
<hr/>	
Check tolerance cm3/1000S.	: +- 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance cm3/1000S.	: 6.5
<hr/>	

Rated speed rpm	: 475
Rack travel in mm	: 5.80
Tolerance mm	: +- 0.10
Del. quantity cm3/1000 strokes	: 20.8
Tolerance cm3/1000 strokes	: +- 2.0
Check tolerance cm3/1000S.	: +- 4.5
Spreed	
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: +- 0.20
governor spring pre-tension	
click setting x	: 4.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: 1200

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Del. quantity cm3/1000 strokes	: 113.0
Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000S.	: +- 3.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.5

##### CONTROL LEVER

control lever	
position degree	: 104.0
tolerance degree	: +- 4.0

##### RATED SPEED

rack travel mm	: 12.40
Rated speed rpm	: 1080
Tolerance 1/min	: +- 5

rack travel mm	: 4.00
Rated speed rpm	: 1185
Tolerance 1/min	: +- 5

rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1300

rack travel mm	: 4.00
Tolerance mm	: +- 0.05
Rated speed rpm	: 1185
Tolerance 1/min	: +- 15

##### LOW IDLE

control lever	
position degree	: 83.0
tolerance degree	: +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 5.30
Tolerance mm	: +- 0.10

Rated speed rpm	: 100
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CRT mm min.	: > 19.00
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Testing:

Rated speed rpm : 475  
rack travel mm : 5.80  
Tolerance mm :  $\pm$  0.10  
  
rack travel mm : 2.00  
Rated speed rpm : 550  
Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.05

---

Rated speed rpm : 750

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 700  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 550  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 87.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

#### LOW IDLE

Rated speed rpm : 475  
  
Rack travel in mm : 5.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.8  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.06.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 051

Injection pump  
Pump designation : PES4A95D320/3RS2920  
EP type number : F 002 A10 012

Governor  
Governor design. : RSV475...1050AOC931R  
Governor no. : F 002 A20 237

Cust. part No. : 3283921

Customer-spec. information  
Customer : CUMMINS  
Motor : CUMMINS-4BTA-3.9  
Power KW : 79.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values -----

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

## Start of delivery blocking

\*NW after s.o.d. : 9.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 115.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.0

Spreed

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 6.25  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 22.0

Tolerance  
cm3/1000 strokes : +- 2.0

Check tolerance  
cm3/1000S. : +- 4.5

Spreed

Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 2.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm3/1000 strokes : 115.0

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Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.0

Spreed

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 6.5

#### CONTROL LEVER

control lever  
position degree : 99.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 12.30  
Rated speed rpm : 1110  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min : +- 5

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1500

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min : +- 15

#### LOW IDLE

control lever  
position degree : 79.0  
tolerance degree : +- 4.0

Control lever difference  
Grad : 20.0  
tolerance degree : +- 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 5.75  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 6.25  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 550  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 14.40  
Tolerance mm :  $\pm$  0.20

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900

Rated speed rpm : 500  
Pressure hPa :  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 400  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.20

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 750  
Del. quantity  
cm3/1000 strokes : 129.2  
Tolerance  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 75.9  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm3/1000 strokes : 121.4  
Tolerance  
cm3/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm3/1000S. :  $\pm$  15.0

#### LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 6.25  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm3/1000 strokes : 22.0  
Tolerance  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 8.0

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.06.97  
Test oil : ISO 4113

Combination No. : 0 402 034 700

Injection pump  
Pump designation : PES4P120B120RS3379  
EP type number : 0 412 024 702

Governor  
Governor design. : RQV475...1100PA1314K  
Governor no. : 0 421 815 543

Cust. part No. : 3928601

Customer-spec. information  
Customer : CDC  
Motor : 4BTA-A  
Power KW : 93.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

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x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 6.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spread

Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

Rated speed rpm : 475

Rack travel in mm : 6.10

Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 31.0

Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 5.0

Spread

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1163  
guide sleeve  
travel mm : 7.66  
Tolerance mm : + 0.15

Rated speed rpm : 475  
guide sleeve  
travel mm : 1.59  
Tolerance mm : + 0.20

Rated speed rpm : 931  
guide sleeve  
travel mm : 5.89  
Tolerance mm : + 0.25

Rated speed rpm : 670  
guide sleeve  
travel mm : 3.53  
Tolerance mm : + 0.25

Rated speed rpm : 1660

guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm3/1000 strokes : 142.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spread

Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 111.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 10.50  
Rated speed rpm : 1155  
Tolerance 1/min : + 15

rack travel mm : 6.60  
Rated speed rpm : 1230  
Tolerance 1/min : + 5

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : + 4.0

Control lever difference  
Grad : 43.0  
tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 400

CRT mm min. : > 7.40

#### Testing:

Rated speed rpm : 475  
rack travel mm : 6.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 550  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.20

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200

Rated speed rpm : 1100  
Pressure hPa : -  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 765  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 600  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.20

##### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 415

Check  
speed 1/min : > 80

Check  
speed 1/min : < 425

#### FUEL DELIVERY CHARACTERISTICS

##### Aneroid pressure

hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### Aneroid pressure

hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

#### LOW IDLE

Rated speed rpm : 475

Rack travel in mm : 6.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000s. : + 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.06.97  
Test oil : ISO 4113

Combination No. : 0 402 736 813

Injection pump  
Pump designation : PES6P110A120RS7214  
EP type number : 0 412 716 805

Governor  
Governor design. : RQV350...1100PA964  
: -5K  
Governor no. : 0 421 815 257

Cust. part No. : 3921772

Customer-spec. information  
Customer : CDC  
Motor : 6CTA-A  
Power KW : 187.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.03  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 5.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.55

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 187.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.60

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 30.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance

cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1000

guide sleeve

travel mm : 8.20

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 350

guide sleeve

travel mm : 1.90

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 450

guide sleeve

travel mm : 3.30

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 600

guide sleeve

travel mm : 5.30

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1200

guide sleeve

travel mm : 9.80

Tolerance mm :  $\pm$  0.20

##### GUIDE SLEEVE POSITION

control lever

position degree : - 1

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure

hPa : 1500

Del. quantity

cm<sup>3</sup>/1000 strokes : 187.5

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance

cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever

position degree : 118.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 13.50

Rated speed rpm : 1150

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1305

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 67.0  
tolerance degree :  $\pm$  4.0

Control lever difference  
Grad : 51.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 275  
CRT mm min. :  $>$  7.20

Testing:

Rated speed rpm : 350  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 425

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
rack travel mm : 13.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1500

Rated speed rpm : 1100  
Pressure hPa : -  
rack travel mm : 7.90  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 845  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 335  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  290

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  300

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 203.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.06.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 736 913  
  
Injection pump  
Pump designation : PES6P120A120RS7369  
EP type number : 0 412 726 935

Governor  
Governor design. : RQV400...1400PA1211  
: -1K  
Governor no. : 0 421 815 530

Cust. part No. : 3931538

Customer-spec. information  
Customer : CDC  
Motor : 6BTA-A  
Power KW : 160.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 12.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Start of delivery blocking

°NW after s.o.d. : 6.75  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 14.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

Rated speed rpm : 420

Rack travel in mm : 6.10  
Tolerance mm : +- 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1410  
guide sleeve

travel mm : 8.73  
Tolerance mm : +- 0.25

Rated speed rpm : 400  
guide sleeve

travel mm : 2.01  
Tolerance mm : +- 0.25

Rated speed rpm : 1488  
guide sleeve

travel mm : 9.53  
Tolerance mm : +- 0.25

Rated speed rpm : 462  
guide sleeve

travel mm : 2.91

G04

Tolerance mm : +- 0.25

Rated speed rpm : 512

guide sleeve

travel mm : 3.37

Tolerance mm : +- 0.25

Rated speed rpm : 1000

guide sleeve

travel mm : 5.53

Tolerance mm : +- 0.25

Rated speed rpm : 2130

guide sleeve

travel mm : 13.50

Tolerance mm : +- 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure

hPa : 1500

Del. quantity

cm<sup>3</sup>/1000 strokes : 180.0

Tolerance

cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance

cm<sup>3</sup>/1000S. : +- 4.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance

cm<sup>3</sup>/1000S. : 13.0

##### CONTROL LEVER

control lever

position degree : 118.0

tolerance degree : +- 6.0

##### RATED SPEED

rack travel mm : 13.40

Rated speed rpm : 1450

Tolerance 1/min : +- 25

rack travel mm : 5.50

Rated speed rpm : 1650

Tolerance 1/min : +- 5

rack travel mm : 0.50

Tolerance mm : +- 0.50

Rated speed rpm : 1875

##### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  6.0

Control lever difference  
Grad : 50.0  
tolerance degree :  $\pm$  6.0

Setting point w/out bumper spring

Rated speed rpm : 300  
CRT mm min. :  $>$  8.70

Testing:

Rated speed rpm : 420  
rack travel mm : 6.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 425

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 14.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1300  
Pressure hPa : 1500

Rated speed rpm : 1300  
Pressure hPa : -  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 1300  
Pressure hPa : 965  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.30

Pressure hPa : 390  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.20

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  340

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  350

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 79.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

LOW IDLE

Rated speed rpm : 420

Rack travel in mm : 6.10  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.06.97  
Test oil : ISO 4113

Combination No. : 9 400 030 737

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV475...1100AOC850R  
Governor no. : 9 420 034 716

Cust. part No. : 3929409

Customer-spec. information  
Customer : CDC  
Motor : 6BT  
Power KW : 90.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

G07

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Start of delivery blocking

\*NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.85  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	:	86.0
Tolerance cm <sup>3</sup> /1000 strokes	: ±	1.0
Check tolerance cm <sup>3</sup> /1000S.	: ±	3.0
Spread		
Tolerance cm <sup>3</sup> /1000 strokes	:	3.5
Check tolerance cm <sup>3</sup> /1000S.	:	6.0

Rated speed rpm	:	500
Rack travel in mm	:	5.40
Tolerance mm	: ±	0.10
Del. quantity cm <sup>3</sup> /1000 strokes	:	18.5
Tolerance cm <sup>3</sup> /1000 strokes	: ±	2.0
Check tolerance cm <sup>3</sup> /1000S.	: ±	4.5
Spread		
Tolerance cm <sup>3</sup> /1000 strokes	:	3.5
Check tolerance cm <sup>3</sup> /1000S.	:	5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800
Rack travel in mm	:	0.50
Tolerance mm	: ±	0.20
governor spring pre-tension click setting x	:	4.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1100
-----------------	---	------

G08

Aneroid pressure hPa	:	-
Del. quantity cm <sup>3</sup> /1000 strokes	:	86.0
Tolerance cm <sup>3</sup> /1000 strokes	: ±	1.0
Check tolerance cm <sup>3</sup> /1000S.	: ±	3.0
Spread		
Tolerance cm <sup>3</sup> /1000 strokes	:	3.5
Check tolerance cm <sup>3</sup> /1000S.	:	6.0

#### CONTROL LEVER

control lever position degree	:	106.0
tolerance degree	: ±	4.0

#### RATED SPEED

rack travel mm	:	9.80
Rated speed rpm	:	1165
Tolerance 1/min	: ±	5

rack travel mm	:	5.50
Rated speed rpm	:	1220
Tolerance 1/min	: ±	5

rack travel mm	:	0.85
Tolerance mm	: ±	0.55
Rated speed rpm	:	1350

rack travel mm	:	5.50
Rated speed rpm	:	1230
Tolerance 1/min	: ±	15

#### LOW IDLE

control lever position degree	:	87.0
tolerance degree	: ±	4.0

Control lever difference Grad	:	19.0
tolerance degree	: ±	6.0

#### Setting point w/out bumper spring

Rated speed rpm	:	500
rack travel mm	:	4.90
Tolerance mm	: ±	0.10

Rated speed rpm	:	100
-----------------	---	-----

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 500  
rack travel mm : 5.40  
Tolerance mm :  $\pm$  0.10

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 800  
Pressure hPa : -

MEASUREMENT

Pressure hPa : 800  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.30

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -

Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

LOW IDLE

Rated speed rpm : 500  
Rack travel in mm : 5.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.06.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 070

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV475...1100A2C948R  
Governor no. : F 002 A20 249

Cust. part No. : 3933621

## Customer-spec. information

Customer : CDC  
Motor : 6BTA  
Power KW : 114.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 8.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.35



Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 500

Rack travel in mm : 5.35

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

##### CONTROL LEVER

control lever  
position degree : 102.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.30  
Rated speed rpm : 1165

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1245

Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1300

rack travel mm : 4.00

Rated speed rpm : 1250

Tolerance 1/min :  $\pm$  15

##### LOW IDLE

control lever  
position degree : 79.0  
tolerance degree :  $\pm$  4.0

Control lever difference  
Grad : 23.0  
tolerance degree :  $\pm$  6.0

##### Setting point w/out bumper spring

Rated speed rpm : 500

rack travel mm : 4.85

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
 CRT mm min. : > 19.00  
 Testing:  
 Rated speed rpm : 500  
 rack travel mm : 5.35  
 Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
 rack travel mm : 12.35  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
 rack travel mm : 13.65  
 Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1000  
 rack travel mm : 13.10  
 Tolerance mm :  $\pm$  0.20

Rated speed rpm : 900  
 rack travel mm : 13.60  
 Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
 Pressure hPa : 1200

Rated speed rpm : 500  
 Pressure hPa : -  
 rack travel mm : 10.60  
 Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 500  
 Pressure hPa : 800  
 rack travel mm : 12.90  
 Tolerance mm :  $\pm$  0.20

Pressure hPa : 550  
 rack travel mm : 11.80  
 Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1200  
 Rated speed rpm : 900  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 122.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### Aneroid pressure

hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 85.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.50  
 Tolerance mm :  $\pm$  0.50  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 120.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

#### LOW IDLE

Rated speed rpm : 500  
 Rack travel in mm : 5.35  
 Tolerance mm :  $\pm$  0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 22.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.06.97  
Test oil : ISO 4113  
Combination No. : F 002 A0Z 071  
Injection pump  
Pump designation : PES6A95D320/3RS2928  
EP type number : F 002 A10 019  
Governor  
Governor design. : RSV450...900A4C949R  
Governor no. : F 002 A20 247

Cust. part No. : 3933099

## Customer-spec. information

Customer : CDC  
Motor : 6CT 8.3  
Power KW : 104.3

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 093  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery blocking  
°NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.85  
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 109.0
Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000S.	: +- 3.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.5

Rated speed rpm	: 425
Rack travel in mm	: 8.90
Tolerance mm	: +- 0.10
Del. quantity cm3/1000 strokes	: 32.0
Tolerance cm3/1000 strokes	: +- 2.0
Check tolerance cm3/1000S.	: +- 4.5
Spreed	
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 100
Rack travel in mm	: 0.50
Tolerance mm	: +- 0.20
governor spring pre-tension click setting x	: 3.25

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 900
-----------------	-------

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Aneroid pressure hPa	: -
Del. quantity cm3/1000 strokes	: 109.0
Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000S.	: +- 3.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.5

#### CONTROL LEVER

control lever position degree	: 108.5
tolerance degree	: +- 4.0

RATED SPEED	
rack travel mm	: 10.30
Rated speed rpm	: 945
Tolerance 1/min	: +- 5

rack travel mm	: 4.00
Rated speed rpm	: 995
Tolerance 1/min	: +- 5

rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1050

rack travel mm	: 4.00
Rated speed rpm	: 1000
Tolerance 1/min	: +- 15

#### LOW IDLE

control lever position degree	: 88.0
tolerance degree	: +- 4.0

Control lever difference	
Grad	: 20.5
tolerance degree	: +- 6.0

#### Setting point w/out bumper spring

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 19.00
-------------	-----------

Testing:

Rated speed rpm : 425  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

#### LOW IDLE

Rated speed rpm : 425  
Rack travel in mm : 8.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.06.97

Test oil : ISO 4113

Combination No. : 0 402 066 708

## Injection pump

Pump designation : PES6P120A120RS3358

EP type number : 0 412 026 784

## Governor

Governer design. : RSV475...1150P2A619

Governer no. : 0 421 833 522

Cust. part No. : 3283019

## Customer-spec. information

Customer : CDC

Motor : 6BTA-590 ELITE

Power KW : 136.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

## Overflow quantity

min. l/h : 100

Tolerance l/h : ± 20.0

## Test nozzle holder

assembly : 1 688 901 103

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 2.85

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 6.75

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

---

Rack travel in mm : 11.60  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 470

Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.50

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

#### CONTROL LEVER

control lever  
position degree : 106.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 10.60

Rated speed rpm : 1195

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1300

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1400

rack travel mm : 4.00

Rated speed rpm : 1310

Tolerance 1/min :  $\pm$  15

---

#### LOW IDLE

control lever  
position degree : 85.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 470

rack travel mm : 4.80

Tolerance mm :  $\pm$  0.10



### Testing:

Rated speed rpm : 470  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 610  
Tolerance 1/min :  $\pm$  30

### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.10

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 560  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.05

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 16.0

### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

### LOW IDLE

Rated speed rpm : 470  
Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.06.97  
Test oil : ISO 4113  
Combination No. : 0 402 076 748  
Injection pump  
Pump designation : PES6P110A720RS3305  
: -1  
EP type number : 0 412 016 742  
Governor  
Governor design. : RSV300...1100P1A555  
Governor no. : 0 421 833 379

Cust. part No. : 9271058

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 926 TI  
Power KW : 210.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 049  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Overflow quantity  
min. l/h : 130  
Tolerance l/h : ± 10.0  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 207.5  
Tolerance bar : ± 1.5

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Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.25  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 400

Rack travel in mm : 4.40  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure  
hPa : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

##### CONTROL LEVER

control lever  
position degree : 108.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.25  
Rated speed rpm : 1040  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1260

rack travel mm : 4.00  
Rated speed rpm : 1100  
Tolerance 1/min :  $\pm$  15

---

##### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.10

##### Testing:

Rated speed rpm : 400  
rack travel mm : 4.40  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 510  
Tolerance 1/min : +- 30

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.25  
Tolerance mm : +- 0.05

Rated speed rpm : 600  
rack travel mm : 11.25  
Tolerance mm : +- 0.10

Rated speed rpm : 500  
rack travel mm : 11.30  
Tolerance mm : +- 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 550  
Pressure hPa : 1100  
rack travel mm : 11.25  
Tolerance mm : +- 0.05

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 9.75  
Tolerance mm : +- 0.10

##### MEASUREMENT

Rated speed rpm : 550  
Pressure hPa : 650  
rack travel mm : 11.00  
Tolerance mm : +- 0.05

Pressure hPa : 550  
rack travel mm : 10.25  
Tolerance mm : +- 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 600  
Del. quantity  
cm3/1000 strokes : 186.0  
Tolerance  
cm3/1000 strokes : +- 2.0

Check tolerance  
cm3/1000S. : +- 5.0

---

#### Aneroid pressure

hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm3/1000 strokes : 152.5  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 3.5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : +- 0.50  
Del. quantity  
cm3/1000 strokes : 145.0  
Tolerance  
cm3/1000 strokes : +- 10.0  
Check tolerance  
cm3/1000S. : +- 14.0

---

#### LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 4.40  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 36.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 5.5  
Spreed  
Tolerance  
cm3/1000 strokes : 4.5  
Check tolerance  
cm3/1000S. : 7.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.06.97  
Test oil : ISO 4113

Combination No. : 0 402 076 748A

Injection pump  
Pump designation : PES6P110A720RS3305  
: -1  
EP type number : 0 412 016 742

Governor  
Governor design. : RSV300...1100P1A555  
Governor no. : 0 421 833 379

Cust. part No. : 9271058

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 926 TI  
Power KW : 210.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 130  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 207.0  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.25  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	:	165.0
<hr/>		
Tolerance cm <sup>3</sup> /1000 strokes	:	± 1.0
<hr/>		
Check tolerance cm <sup>3</sup> /1000S.	:	± 3.5
<hr/>		
Spreed		
<hr/>		
Tolerance cm <sup>3</sup> /1000 strokes	:	4.0
<hr/>		
Check tolerance cm <sup>3</sup> /1000S.	:	7.5
<hr/>		
Rated speed rpm	:	400
Rack travel in mm	:	4.40
Tolerance mm	:	± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	:	36.0
Tolerance cm <sup>3</sup> /1000 strokes	:	± 3.0
Check tolerance cm <sup>3</sup> /1000S.	:	± 5.5
Spreed		
Tolerance cm <sup>3</sup> /1000 strokes	:	4.5
Check tolerance cm <sup>3</sup> /1000S.	:	7.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800
Rack travel in mm	:	0.50
Tolerance mm	:	± 0.20

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1000
Aneroid pressure hPa	:	1100
Del. quantity cm <sup>3</sup> /1000 strokes	:	165.0

Tolerance cm <sup>3</sup> /1000 strokes	:	± 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	± 3.5
Spreed		
Tolerance cm <sup>3</sup> /1000 strokes	:	4.0
Check tolerance cm <sup>3</sup> /1000S.	:	7.5

---

CONTROL LEVER

control lever position degree	:	108.0
tolerance degree	:	± 4.0

RATED SPEED

rack travel mm	:	10.25
Rated speed rpm	:	1025
Tolerance 1/min	:	± 5

rack travel mm	:	4.00
Rated speed rpm	:	1095
Tolerance 1/min	:	± 15

rack travel mm	:	0.85
Tolerance mm	:	± 0.55
Rated speed rpm	:	1260

rack travel mm	:	4.00
Rated speed rpm	:	1100
Tolerance 1/min	:	± 15

---

LOW IDLE

control lever position degree	:	78.0
tolerance degree	:	± 4.0

Setting point w/out bumper spring

Rated speed rpm	:	400
rack travel mm	:	3.90
Tolerance mm	:	± 0.10

Testing:

Rated speed rpm	:	400
rack travel mm	:	4.40
Tolerance mm	:	± 0.10

rack travel mm	:	2.00
Rated speed rpm	:	510
Tolerance 1/min	:	± 30

---

**TORQUE CONTROL**

Rated speed rpm : 1000  
rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.10

---

**ANEROID/ALTITUDE  
COMPENSATOR TEST****SETTING**

Rated speed rpm : 550  
Pressure hPa : 1100  
rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.10

**MEASUREMENT**

Rated speed rpm : 550  
  
Pressure hPa : 650  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05  
  
Pressure hPa : 550  
rack travel mm : 10.25  
Tolerance mm :  $\pm$  0.10

---

**FUEL DELIVERY CHARACTERISTICS**

---

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 186.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

**STARTING FUEL DELIVERY**

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

**LOW IDLE**

Rated speed rpm : 400  
  
Rack travel in mm : 4.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.06.97

Test oil : ISO 4113

Combination No. : 0 402 678 837

## Injection pump

Pump designation : PE8P120A320LS7911

EP type number : 0 412 628 926

## Governor

Governor design. : RSV550...1050POA679

Governor no. : 0 421 833 598

Cust. part No. : 027 074 6502

## Customer-spec. information

Customer : MB-NFZ

Motor : OM442LA, Euro

Power KW : 320.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 110

Tolerance l/h : ± 10.0

## Test nozzle holde

assembly : 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3

: - 5- 4- 1

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.50  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 550

Rack travel in mm : 4.40  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 2.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure  
hPa : 1100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1085  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 13.50

Rated speed rpm : 1125  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1087  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 13.50

Rated speed rpm : 1127  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1089  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 13.50

Rated speed rpm : 1129  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1091  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 13.50

Rated speed rpm : 1131  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1093  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 13.50

Rated speed rpm : 1133  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 13.50

Rated speed rpm : 1135  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

---

#### LOW IDLE

##### Testing:

Rated speed rpm : 550  
rack travel mm : 4.40  
Tolerance mm :  $\pm$  0.10

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 15.00

H01

Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1100  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 500  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 600  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 256.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm3/1000S. : +- 5.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.00  
Tolerance mm : +- 0.20  
Del. quantity  
cm3/1000 strokes : 250.0  
Tolerance  
cm3/1000 strokes : +- 10.0  
Check tolerance  
cm3/1000S. : +- 14.0

---

#### LOW IDLE

Rated speed rpm : 550  
  
Rack travel in mm : 4.40  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 19.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.97

Test oil : ISO 4113

Combination No. : 0 402 736 862

## Injection pump

Pump designation : PES6P110A120RS7214

EP type number : 0 412 716 805

## Governor

Governer design. : RQV350...1200PA964

: -30K

Governer no. : 0 421 815 432

Cust. part No. : 3282469

## Customer-spec. information

Customer : CUMMINS

Motor : 6CTA-A

Power KW : 213.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

## Overflow quantity

min. l/h : 120

Tolerance l/h : ± 5.0

## Test nozzle holde

assembly : 1 688 901 101

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 23.0

Tolerance bar : ± 1.0

Prestroke mm : 4.40

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.75

Tolerance mm : ± 0.05

## Del. quantity

cm<sup>3</sup>/1000 strokes : 192.5

## Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.60

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1260

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 192.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

HQ4

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 66.0  
tolerance degree : + 4.0

control lever  
position degree : 122.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 13.20

Rated speed rpm : 1250

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1405

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1500

##### LOW IDLE

control lever  
position degree : 67.0  
tolerance degree : + 4.0

control lever  
position degree : 15.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. : > 7.10

Testing:

Rated speed rpm : 350  
rack travel mm : 5.60  
Tolerance mm : + 0.10

Rated speed rpm : 423

##### TORQUE CONTROL

Rated speed rpm : 1100

rack travel mm : 14.75

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
 rack travel mm : 12.80  
 Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1200  
 rack travel mm : 14.30  
 Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
 Pressure hPa : 1200  
 rack travel mm : 14.75  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100  
 Pressure hPa : -  
 rack travel mm : 8.00  
 Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 785  
 rack travel mm : 13.00  
 Tolerance mm :  $\pm$  0.20

Pressure hPa : 335  
 rack travel mm : 9.65  
 Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
 Rated speed rpm :  $<$  290

Check  
 speed 1/min :  $>$  80  
 Check  
 speed 1/min :  $<$  300

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
 hPa : 1200  
 Rated speed rpm : 650  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 184.0

Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

---

#### Aneroid pressure

hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 92.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
 rack travel mm : 11.20  
 Tolerance mm :  $\pm$  0.50  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 155.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.60  
 Tolerance mm :  $\pm$  0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 30.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  5.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.06.97  
Test oil : ISO 4113

Combination No. : 0 401 496 002

Injection pump  
Pump designation : PE6R130/720RS1503  
EP type number : 0 411 436 001

Governor  
Governor design. : RE31  
Governor no. : 0 421 890 201

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8210.42.5000

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 7.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Check  
tolerance °NW : ± 0.40

Barrel no. : 1

---

### (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

#### TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

### (C) INJECTION PUMP WITH POSITIONER

#### TEST POINT V1

Rated speed rpm : 950  
Uact V : 3.218  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 279.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 16.0  
FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 750  
Uact V : 3.218  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 293.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 10.0

---

Rated speed rpm : 550  
Uact V : 2.300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 189.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 9.0

TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.260  
Tolerance Volt :  $\pm 0.060$   
Check tolerance  
Volt :  $\pm 0.120$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 4.700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 15.0$   
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 20.0$

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.06.97  
Test oil : ISO 4113

Combination No. : 0 401 846 529

Injection pump  
Pump designation : PE6P120A320RS3186  
EP type number : 0 411 826 756

Governor  
Governor design. : RQV250...1025PA921  
: -4  
Governor no. : 0 421 813 787

Cust. part No. : 422719-P05 V. 06/92

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : TD102F (Q)  
Power KW : 220.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration  
damper  
(RoBo diaphragm) : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

H10

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.45  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 4.30  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1080  
guide sleeve  
travel mm : 8.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
guide sleeve  
travel mm : 6.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 430  
guide sleeve  
travel mm : 3.65  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 700  
guide sleeve  
travel mm : 6.50  
Tolerance mm :  $\pm$  0.10

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1080

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 62.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 117.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.40  
Rated speed rpm : 1060  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1125  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : +- 4.0

control lever  
position degree : 8.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 5.70

#### Testing:

Rated speed rpm : 250  
rack travel mm : 4.30  
Tolerance mm : +- 0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 11.45  
Tolerance mm : +- 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 11.45  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.90  
Tolerance mm : +- 0.10

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 510  
rack travel mm : 2.20  
Tolerance mm : +- 0.20

Pressure hPa : 100  
rack travel mm : 0.25  
Tolerance mm : +- 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm3/1000 strokes : 144.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0

---

#### LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 4.30  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 19.0  
Tolerance  
cm3/1000 strokes : +- 2.5  
Check tolerance  
cm3/1000S. : +- 5.0

Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.06.97  
Test oil : ISO 4113  
Combination No. : 0 402 036 756  
Injection pump  
Pump designation : PES6P120A720/3LS3255  
: -3  
EP type number : 0 412 026 774

Governor  
Governor design. : RQ300/1000PA813-19  
Governor no. : 0 421 801 561

Cust. part No. : 51.11103-7316

Customer-spec. information  
Customer : MAN  
Motor : D2866LF05  
Power KW : 272.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Tolerance bar : +- 0.1  
Test nozzle holde  
assembly : 1 688 901 019  
Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5  
Test lines : 1 680 750 075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0  
Prestroke mm : 3.75  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10  
Rack travel in mm : 15.00  
Tolerance mm : +- 0.50  
Firing order : 6- 2- 4- 1- 5-  
: 3  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75  
Start of delivery mark  
Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 700  
Rack travel in mm : 15.15  
Tolerance mm : +- 0.05  
Rated speed rpm : 300

Rack travel in mm : 5.00  
 Tolerance mm :  $\pm$  0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 20.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1059  
 guide sleeve  
 travel mm : 6.53  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.79  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
 guide sleeve  
 travel mm : 6.20  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 810  
 guide sleeve  
 travel mm : 6.05  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 394  
 guide sleeve  
 travel mm : 4.07  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
 guide sleeve  
 travel mm : 6.00  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1240  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm :  $\pm$  0.50

Rated speed rpm : 840  
 guide sleeve  
 travel mm : 6.15

Tolerance mm :  $\pm$  0.10

##### GUIDE SLEEVE POSITION

control lever  
 position degree : 109  
 Rated speed rpm : 550

Rack travel in mm : 20.00  
 Tolerance mm :  $\pm$  0.80

##### RATED SPEED

rack travel mm : 14.10  
 Rated speed rpm : 1053  
 Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
 Rated speed rpm : 1180  
 Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50  
 Rated speed rpm : 1300

##### LOW IDLE

control lever  
 position degree : 254.0  
 tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
 CRT mm min. :  $>$  6.50

##### Testing:

Rated speed rpm : 300  
 rack travel mm : 5.00  
 Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
 Rated speed rpm : 380  
 Tolerance 1/min :  $\pm$  20

##### TORQUE CONTROL

Rated speed rpm : 700  
 rack travel mm : 15.15  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000



rack travel mm : 15.15  
Tolerance mm : +- 0.05  
  
Rated speed rpm : 700  
rack travel mm : 8.00  
Tolerance mm : +- 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 15.15  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 12.10  
Tolerance mm : +- 0.10

##### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 470  
rack travel mm : 14.20  
Tolerance mm : +- 0.20  
  
Pressure hPa : 110  
rack travel mm : 12.35  
Tolerance mm : +- 0.05

---

##### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220  
  
Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1000  
Del. quantity  
cm3/1000 strokes : 244.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm3/1000 strokes : 94.0  
Tolerance  
cm3/1000 strokes : +- 5.0  
Check tolerance  
cm3/1000S. : +- 8.0  
Speed  
Tolerance  
cm3/1000 strokes : 10.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 139.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm3/1000 strokes : 220.0  
Tolerance  
cm3/1000 strokes : +- 10.0  
Check tolerance  
cm3/1000S. : +- 14.0

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 5.00  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 20.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 640 838  
  
Injection pump  
Pump designation : PE12P120A520LS7829  
: -1  
EP type number : 0 412 620 827  
  
Governor  
Governor design. : RQV300...1150PA1039  
: -1K  
Governor no. : 0 421 815 315  
  
Cust. part No. : 3-7226

Customer-spec. information  
Customer : MAN  
Motor : D2842LE401  
Power kW : 735.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 025  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 019  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 075

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Outside diameter : 8.0  
x inside diameter : 2.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 12-1A- 5- 9A- 8  
: - 3A- 4-11A- 10  
: - 2A- 6

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75  
  
Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 1150  
  
Rack travel in mm : 13.85  
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 305.0
<hr/>	
Tolerance cm3/1000 strokes	: +- 1.0
<hr/>	
Check tolerance cm3/1000S.	: +- 4.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm3/1000 strokes	: 5.0
<hr/>	
Check tolerance cm3/1000S.	: 9.0
<hr/>	

Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: 6.80
Tolerance mm	: +- 0.10
Del. quantity cm3/1000 strokes	: 45.0
Tolerance cm3/1000 strokes	: +- 5.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1206
guide sleeve travel mm	: 10.42
Tolerance mm	: +- 0.25

Rated speed rpm	: 300
guide sleeve travel mm	: 2.24
Tolerance mm	: +- 0.25

Rated speed rpm	: 795
guide sleeve travel mm	: 6.88
Tolerance mm	: +- 0.25

Rated speed rpm	: 329
guide sleeve travel mm	: 2.75
Tolerance mm	: +- 0.25

Rated speed rpm	: 379
guide sleeve travel mm	: 3.53
Tolerance mm	: +- 0.25

Rated speed rpm	: 450
guide sleeve travel mm	: 4.21
Tolerance mm	: +- 0.25

Rated speed rpm	: 1450
guide sleeve travel mm	: 13.50
Tolerance mm	: +- 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1280

Rack travel in mm	: 12.80
Tolerance mm	: +- 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure hPa	: 1300
Del. quantity cm3/1000 strokes	: 305.0
Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000S.	: +- 4.0
Spreed	
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 120.0
tolerance degree	: +- 4.0

RATED SPEED	
rack travel mm	: 12.80
Rated speed rpm	: 1203
Tolerance 1/min	: +- 8

rack travel mm	: 4.00
Rated speed rpm	: 1325
Tolerance 1/min	: +- 15

rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 1450

---

## LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  8.30

### Testing:

Rated speed rpm : 300  
rack travel mm : 6.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 330

---

## TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 6.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 8.60  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1300  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150

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Pressure hPa : -  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.10

## MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 850  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 400  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.05

---

## Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  240

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  260

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 257.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 277.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Delivery for shutoff assemblies  
(refer to cam sequence).

Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 0.1  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.1

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 14.0

#### LOW IDLE

Delivery for standard plunger/barrel  
assemblies.  
Zero delivery for shutoff assemblies  
(refer to cam sequence).

Rated speed rpm : 300

Rack travel in mm : 6.80  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97  
Test oil : ISO 4113  
Combination No. : 0 402 640 839  
Injection pump  
Pump designation : PE12P120A520LS7829  
: -1  
EP type number : 0 412 620 827  
Governor  
Governor design. : RQV300...1150PA1039K  
Governor no. : 0 421 815 314

Cust. part No. : 3-7227

Customer-spec. information  
Customer : MAN  
Motor : D2842LE402  
Power KW : 809.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Tolerance bar : +- 0.1  
Test nozzle holde  
assembly : 1 688 901 019  
Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5  
Test lines : 1 680 750 075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 4.55  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm : +- 1.50

Firing order : 12-1A- 5- 9A- 8  
: - 3A- 4-11A- 10  
: - 2A- 6

Phasing : 0-45-60-105-120  
: -165-130-225-240  
: -285-300-345  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

## Start of delivery blocking

Tolerance : +- 0.10  
Check  
tolerance °NW : +- 0.75

Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.55  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 338.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.80  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206  
guide sleeve  
travel mm : 10.43  
Tolerance mm : ± 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.24  
Tolerance mm : ± 0.25

Rated speed rpm : 795  
guide sleeve  
travel mm : 6.88  
Tolerance mm : ± 0.25

Rated speed rpm : 329  
guide sleeve  
travel mm : 2.75

Tolerance mm : ± 0.25

Rated speed rpm : 379  
guide sleeve  
travel mm : 3.53  
Tolerance mm : ± 0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 4.21  
Tolerance mm : ± 0.25

Rated speed rpm : 1450  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1265

Rack travel in mm : 13.70  
Tolerance mm : ± 2.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 338.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 13.50  
Rated speed rpm : 1203  
Tolerance 1/min : ± 8  
rack travel mm : 4.00



Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  15  
  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1450

---

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
  
CRT mm min. :  $>$  8.30

#### Testing:

Rated speed rpm : 300  
rack travel mm : 6.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 330

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 6.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 8.10  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

H23

Rated speed rpm : 1150  
Pressure hPa : 1500  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
Pressure hPa : -  
rack travel mm : 9.70  
Tolerance mm :  $\pm$  0.10

---

#### MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 850  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 400  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  240

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  260

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 315.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm3/1000S. : +- 6.0

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 0.1  
Tolerance  
cm3/1000 strokes : +- 0.1  
Check tolerance  
cm3/1000S. : +- 0.1

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 135.0  
Tolerance  
cm3/1000 strokes : +- 10.0  
Check tolerance  
cm3/1000S. : +- 10.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 170.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 19.60  
Tolerance mm : +- 1.40  
Del. quantity  
cm3/1000 strokes : 95.0

H24

Tolerance  
cm3/1000 strokes : +- 10.0  
Check tolerance  
cm3/1000S. : +- 14.0

#### LOW IDLE

Delivery for standard plunger/barrel  
assemblies.  
Zero delivery for shutoff assemblies  
(refer to cam sequence).

Rated speed rpm : 300

Rack travel in mm : 6.80  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 45.0  
Tolerance  
cm3/1000 strokes : +- 5.0  
Check tolerance  
cm3/1000S. : +- 8.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 19.06.97

Test oil : ISO 4113

Combination No. : 0 402 646 609

Injection pump

Pump designation : PE6P120A720RS7188

: -10

EP type number : 0 412 626 924

Governor

Governer design. : RQV200...950PA725

: -11

Governer no. : 0 421 814 033

Cust. part No. : 1340418

Customer-spec. information

Customer : SCANIA

Motor : DSC 11 36

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration  
damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 230

Tolerance l/h : ± 20.0

Test nozzle holde

assembly : 1 688 901 104

H25

Opening pressure

bar : 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.45

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order

: 1- 5- 3- 6- 2-

: 4

Phasing

: 0-60-120-180-240

: -300

Tolerance

: ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance

: ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no.

: 1

---

#### BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 13.85  
Tolerance mm :  $\pm 0.05$

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$

---

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 250

Rack travel in mm : 4.70  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.0$

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1150

Rack travel in mm : 9.50  
Tolerance mm :  $\pm 2.50$

H26

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### CONTROL LEVER

control lever  
position degree : 62.0  
tolerance degree :  $\pm 4.0$

control lever  
position degree : 116.0  
tolerance degree :  $\pm 4.0$

#### RATED SPEED

rack travel mm : 12.80  
Rated speed rpm : 995

Tolerance 1/min :  $\pm 5$   
Check

speed 1/min :  $\pm 10$

rack travel mm : 4.00  
Rated speed rpm : 1125

Tolerance 1/min :  $\pm 15$   
Check

speed 1/min :  $\pm 20$

rack travel mm : 0.50  
Tolerance mm :  $\pm 0.50$

Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree :  $\pm 4.0$

control lever  
position degree : 10.0

tolerance degree :  $\pm$  4.0  
Setting point w/out bumper spring

Rated speed rpm : 150  
CRT mm min. :  $>$  6.00

#### Testing:

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 270

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 375  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 185  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 237.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 115.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250  
Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.06.97  
Test oil : ISO 4113

Combination No. : 0 402 646 613

Injection pump  
Pump designation : PE6P120A320RS7248  
: -10W  
EP type number : 0 412 626 908

Governor  
Governor design. : RQ275/1150PA987  
Governor no. : 0 421 801 578

Cust. part No. : 1278684/3

## Customer-spec. information

Customer : DAF  
Motor : RS 180 M  
Power KW : 180.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.75  
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	:	154.0
<hr/>		
Tolerance cm3/1000 strokes	: +- 1.0	
<hr/>		
Check tolerance cm3/1000S.	: +- 4.0	
<hr/>		
Spreed		
<hr/>		
Tolerance cm3/1000 strokes	:	5.0
<hr/>		
Check tolerance cm3/1000S.	:	9.0

Rack travel in mm	:	4.90
Tolerance mm	: +- 0.10	
Del. quantity cm3/1000 strokes	:	16.0
Tolerance cm3/1000 strokes	: +- 3.0	
Check tolerance cm3/1000S.	: +- 6.0	
Spreed		
Tolerance cm3/1000 strokes	:	8.0
Check tolerance cm3/1000S.	:	12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm guide sleeve travel mm	:	1205
Tolerance mm	: +- 0.10	
<hr/>		
Rated speed rpm guide sleeve travel mm	:	275
Tolerance mm	: +- 0.10	
<hr/>		
Rated speed rpm guide sleeve travel mm	:	1150
Tolerance mm	: +- 0.10	
<hr/>		
Rated speed rpm guide sleeve travel mm	:	351
	:	4.27

Tolerance mm	: +- 0.10
Rated speed rpm guide sleeve travel mm	:
Tolerance mm	: +- 0.10
<hr/>	
Rated speed rpm guide sleeve travel mm	:
Tolerance mm	: +- 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 550
<hr/>	
Rack travel in mm	: 15.80
Tolerance mm	: +- 0.60

FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure hPa	:	-
Del. quantity cm3/1000 strokes	:	154.0
Tolerance cm3/1000 strokes	: +- 1.0	
Check tolerance cm3/1000S.	: +- 4.0	
Spreed		
Tolerance cm3/1000 strokes	:	5.0
Check tolerance cm3/1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	99.0
tolerance degree	: +- 4.0	
<hr/>		
RATED SPEED rack travel mm	:	9.75
Rated speed rpm	:	1192
Tolerance 1/min	: +- 8	
<hr/>		
rack travel mm	:	4.00
Rated speed rpm	:	1265
Tolerance 1/min	: +- 15	
<hr/>		
rack travel mm	:	0.70
Tolerance mm	: +- 0.70	
Rated speed rpm	:	1450



---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. :  $>$  7.00

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 340  
Tolerance 1/min :  $\pm$  20

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 600  
Pressure hPa : 300  
rack travel mm : 10.45

J03

Tolerance mm :  $\pm$  0.05  
Pressure hPa : 240  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### LOW IDLE

Rack travel in mm : 4.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.06.97  
Test oil : ISO 4113

Combination No. : 0 402 646 614

Injection pump  
Pump designation : PE6P120A32ORS7248  
: -10W

EP type number : 0 412 626 908

Governor  
Governor design. : RQV275...1150PA986  
Governor no. : 0 421 813 920

Cust. part No. : 1280137/3

Customer-spec. information  
Customer : DAF  
Motor : RS 180 M  
Power KW : 180.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 130  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

J04

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.75  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : 4.90  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206  
guide sleeve  
travel mm : 8.24  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.44  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 799  
guide sleeve  
travel mm : 5.21  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 315  
guide sleeve  
travel mm : 1.98  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 365  
guide sleeve  
travel mm : 2.52  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.07  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1350

Rack travel in mm : 9.70  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 9.75

Rated speed rpm : 1192  
 Tolerance 1/min : +- 5  
  
 rack travel mm : 4.00  
 Rated speed rpm : 1290  
 Tolerance 1/min : +- 15  
  
 rack travel mm : 0.70  
 Tolerance mm : +- 0.70  
 Rated speed rpm : 1450

#### LOW IDLE

control lever  
 position degree : 82.0  
 tolerance degree : +- 4.0  
  
 Setting point w/out bumper spring  
  
 Rated speed rpm : 175  
  
 CRT mm min. : > 7.40  
  
 Testing:  
  
 Rated speed rpm : 275  
 rack travel mm : 4.90  
 Tolerance mm : +- 0.10  
  
 Rated speed rpm : 340

TORQUE CONTROL  
 Rated speed rpm : 1000  
 rack travel mm : 10.75  
 Tolerance mm : +- 0.05  
  
 Rated speed rpm : 1150  
 rack travel mm : 10.75  
 Tolerance mm : +- 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600  
 Pressure hPa : 1000  
 rack travel mm : 10.75  
 Tolerance mm : +- 0.05  
  
 Rated speed rpm : 600  
 Pressure hPa : 300  
 rack travel mm : 10.45

Tolerance mm : +- 0.05

##### MEASUREMENT

Rated speed rpm : 600  
  
 Pressure hPa : -  
 rack travel mm : 9.50  
 Tolerance mm : +- 0.10  
  
 Pressure hPa : 240  
 rack travel mm : 10.00  
 Tolerance mm : +- 0.10

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 600  
 Del. quantity  
 cm3/1000 strokes : 122.5  
 Tolerance  
 cm3/1000 strokes : +- 1.0  
 Check tolerance  
 cm3/1000S. : +- 4.0

#### LOW IDLE

Rated speed rpm : 275  
  
 Rack travel in mm : 4.90  
 Tolerance mm : +- 0.10  
 Del. quantity  
 cm3/1000 strokes : 16.0  
 Tolerance  
 cm3/1000 strokes : +- 3.0  
 Check tolerance  
 cm3/1000S. : +- 6.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 8.0  
 Check tolerance  
 cm3/1000S. : 12.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.06.97  
Test oil : ISO 4113

Combination No. : 0 402 646 619

Injection pump  
Pump designation : PE6P120A720RS7188  
: -100  
EP type number : 0 412 626 925

Governor  
Governor design. : RQV200...950PA725  
: -11  
Governor no. : 0 421 814 033

Cust. part No. : 1340417

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 11 35

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration  
damper  
(RoBo diaphragm) : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 250

Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1150

Rack travel in mm : 9.50  
Tolerance mm :  $\pm$  2.50

##### CONTROL LEVER

control lever  
position degree : 62.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 116.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.70  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1110  
Tolerance 1/min :  $\pm$  15

Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1250

##### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 10.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : > 6.00

##### Testing:

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250

##### TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 185  
rack travel mm : 11.00

Tolerance mm :  $\pm$  0.15  
Pressure hPa : 375  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 115.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250  
Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 646 624  
  
Injection pump  
Pump designation : PE6P120A320RS7299  
EP type number : 0 412 626 885  
  
Governor  
Governor design. : RQV275...1000PA1075K  
Governor no. : 0 421 815 356

Cust. part No. : 1280155

Customer-spec. information  
Customer : DAF  
Motor : WS 295 M  
Power KW : 295.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 025  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Test nozzle holde  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 089  
  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 14.35  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 279.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1046  
guide sleeve  
travel mm : 9.83  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.14  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 689  
guide sleeve  
travel mm : 6.43  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 284  
guide sleeve  
travel mm : 2.27

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 334  
guide sleeve  
travel mm : 3.17  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 390  
guide sleeve  
travel mm : 3.79  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1135

Rack travel in mm : 13.60  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 279.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 13.45  
Rated speed rpm : 1032

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1160  
Tolerance 1/min : + 15  
  
rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1275

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
  
CRT mm min. : > 7.80

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.80  
Tolerance mm : + 0.10

Rated speed rpm : 275

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 14.35  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 13.70  
Tolerance mm : + 0.05

Rated speed rpm : 600  
rack travel mm : 12.80  
Tolerance mm : + 0.10

Rated speed rpm : 500  
rack travel mm : 12.50  
Tolerance mm : + 0.10

Rated speed rpm : 980  
rack travel mm : 14.50  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 14.35  
Tolerance mm : + 0.05

Rated speed rpm : 980  
Pressure hPa : -  
rack travel mm : 8.90  
Tolerance mm : + 0.10

---

#### MEASUREMENT

Rated speed rpm : 980

Pressure hPa : 840  
rack travel mm : 13.25  
Tolerance mm : + 0.05

Pressure hPa : 430  
rack travel mm : 10.40  
Tolerance mm : + 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -

Rated speed rpm : 750  
Del. quantity  
cm3/1000 strokes : 284.0

Tolerance  
cm3/1000 strokes : + 2.0  
Check tolerance  
cm3/1000S. : + 5.0

Spread  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

Aneroid pressure  
hPa : -

Rated speed rpm : 600  
Del. quantity  
cm3/1000 strokes : 172.0

Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0

---

#### LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97  
Test oil : ISO 4113

Combination No. : 0 402 646 630

Injection pump  
Pump designation : PE6P120A720RS7302  
: -10  
EP type number : 0 412 626 928

Governor  
Governor design. : RQ200/950PA745-6  
Governor no. : 0 421 801 702

Cust. part No. : 1354204

Customer-spec. information  
Customer : SCANIA  
Motor : DS 11 78

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration  
damper  
(RoBo diaphragm) : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.35  
Tolerance mm :  $\pm 0.05$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 171.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 4.50  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.0$

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1005  
guide sleeve  
travel mm : 4.88  
Tolerance mm :  $\pm 0.15$

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.41  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 930

guide sleeve  
travel mm : 4.50  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 350  
guide sleeve  
travel mm : 2.88  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 520  
guide sleeve  
travel mm : 4.50  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 1045  
guide sleeve  
travel mm : 5.50  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 1360  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm 0.50$

##### GUIDE SLEEVE POSITION

control lever  
position degree : 104  
Rated speed rpm : 600

Rack travel in mm : 16.50  
Tolerance mm :  $\pm 1.30$

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 171.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 45.0  
tolerance degree :  $\pm 4.0$

control lever  
position degree : 99.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 12.30  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1125  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1250

#### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 10.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150  
CRT mm min. :  $>$  5.80

#### Testing:

Rated speed rpm : 250  
rack travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 335  
Tolerance 1/min :  $\pm$  20

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 13.35

Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 210  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 400  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 275.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250  
Rack travel in mm : 4.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.06.97  
Test oil : ISO 4113  
Combination No. : 0 402 646 660  
Injection pump  
Pump designation : PE6P120A32ORS7248  
: -10V  
EP type number : 0 412 626 946  
Governor  
Governor design. : RQV275...1150PA986  
Governor no. : 0 421 813 920

Cust. part No. : 1300727/1

## Customer-spec. information

Customer : DAF  
Motor : RT 170 L  
Power KW : 170.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 000  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Overflow quantity  
min. l/h : 75  
Tolerance l/h : ± 10.0  
  
Test nozzle holde  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

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Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000



---

Rack travel in mm : 10.60  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1210  
guide sleeve  
travel mm : 8.26  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.44  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 805  
guide sleeve  
travel mm : 5.21

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 309  
guide sleeve  
travel mm : 1.89  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 359  
guide sleeve  
travel mm : 2.41  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 2.99  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1350

Rack travel in mm : 9.60  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

---

##### RATED SPEED

rack travel mm : 9.60  
Rated speed rpm : 1200  
Tolerance 1/min : +- 5  
  
rack travel mm : 4.00  
Rated speed rpm : 1290  
Tolerance 1/min : +- 15  
  
rack travel mm : 0.70  
Tolerance mm : +- 0.70  
Rated speed rpm : 1450

---

#### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree : +- 4.0  
  
Setting point w/out bumper spring  
  
Rated speed rpm : 175  
  
CRT mm min. : > 7.00  
  
Testing:  
  
Rated speed rpm : 275  
rack travel mm : 4.70  
Tolerance mm : +- 0.10  
  
Rated speed rpm : 330

---

TORQUE CONTROL  
Rated speed rpm : 1000  
rack travel mm : 10.60  
Tolerance mm : +- 0.05  
  
Rated speed rpm : 1150  
rack travel mm : 10.60  
Tolerance mm : +- 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 10.60  
Tolerance mm : +- 0.05  
  
Rated speed rpm : 600  
Pressure hPa : -

J20

rack travel mm : 9.50  
Tolerance mm : +- 0.10

##### MEASUREMENT

Rated speed rpm : 600  
  
Pressure hPa : 250  
rack travel mm : 10.30  
Tolerance mm : +- 0.05  
  
Pressure hPa : 190  
rack travel mm : 9.80  
Tolerance mm : +- 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm3/1000 strokes : 122.5  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000s. : +- 4.0

---

#### LOW IDLE

Rated speed rpm : 275  
  
Rack travel in mm : 4.70  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 17.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000s. : +- 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97

Test oil : ISO 4113

Combination No. : 0 402 646 668

## Injection pump

Pump designation : PE6P120A32ORS7412

EP type number : 0 412 626 953

## Governor

Governer design. : RQV275...1000PA1278

: -1K

Governer no. : 0 421 815 510

Cust. part No. : 1310220/1

## Customer-spec. information

Customer : DAF

Motor : XF 280 M

Power KW : 280.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 145

Tolerance l/h : ± 20.0

## Test nozzle holde assembly

: 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

J21

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.45

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.60

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 303.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 3.90  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1062  
guide sleeve  
travel mm : 10.04  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.04  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 697  
guide sleeve  
travel mm : 6.48  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 400

guide sleeve  
travel mm : 3.92  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1171

Rack travel in mm : 10.70  
Tolerance mm :  $\pm$  2.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 303.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.35  
Rated speed rpm : 1050  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1275

---

#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. :  $>$  6.50

#### Testing:

Rated speed rpm : 275  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 750  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 980  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 775  
Pressure hPa : 1500  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 775  
Pressure hPa : -  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 775

Pressure hPa : 450  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 170  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 980  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

LOW IDLE

Rated speed rpm : 275  
  
Rack travel in mm : 3.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm3/1000 strokes : 17.0  
Tolerance  
cm3/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm3/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97  
Test oil : ISO 4113

Combination No. : 0 402 646 673

Injection pump  
Pump designation : PE6P120A320RS7412  
EP type number : 0 412 626 953

Governor  
Governor design. : RQV275...1000PA1300K  
Governor no. : 0 421 815 527

Cust. part No. : 1315099

## Customer-spec. information

Customer : DAF  
Motor : XF 250 M  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 150  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.00  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 289.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : 3.90  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1072  
guide sleeve  
travel mm : 10.16  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.04  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 701  
guide sleeve  
travel mm : 6.52  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 400

guide sleeve  
travel mm : 3.92  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1181

Rack travel in mm : 10.00  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 289.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 10.50  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1140  
Tolerance 1/min :  $\pm$  15

Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.70



Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1275

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. :  $>$  6.50

#### Testing:

Rated speed rpm : 275  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 310

---

#### TORQUE CONTROL

Rated speed rpm : 750  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 980  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 775  
Pressure hPa : 1500  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 775  
Pressure hPa : -  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 775  
Pressure hPa : 460  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 250  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 980  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 3.90

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 17.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance

cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.06.97

Test oil : ISO 4113

Combination No. : 0 402 646 742

## Injection pump

Pump designation : PE6P120A32OLS7837-2

EP type number : 0 412 626 943

## Governor

Governer design. : RQ300/1100PA1272

Governer no. : 0 421 801 804

Cust. part No. : 0270743002

## Customer-spec. information

Customer : MB-NFZ

Motor : OM441 LA

Power KW : 228.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 120

Tolerance l/h : ± 20.0

## Test nozzle holde assembly

: 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 6

## CRT ZERO POSITION

Rack travel in mm : 12.50

Tolerance mm :  $\pm$  0.10

---

#### BASIC SETTING

Rated speed rpm : 600

---

Rack travel in mm : 12.50  
Tolerance mm :  $\pm$  0.10

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 191.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1146  
guide sleeve  
travel mm : 6.54  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 300

guide sleeve  
travel mm : 2.24  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 429  
guide sleeve  
travel mm : 4.97  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1340  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 650

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 191.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 94.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 12.70  
Rated speed rpm : 1150  
Tolerance 1/min : + 5  
Check  
speed 1/min : + 13

rack travel mm : 4.00  
Rated speed rpm : 1260  
Tolerance 1/min : + 15  
Check  
speed 1/min : + 20

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 9.00

Testing:

Rated speed rpm : 300  
rack travel mm : 5.60  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min : + 20

---

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 12.50  
Tolerance mm : + 0.10

Rated speed rpm : 1100  
rack travel mm : 13.70  
Tolerance mm : + 0.10

Rated speed rpm : 700  
rack travel mm : 13.70  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

2-stage LDA setting

Rated speed rpm : 400  
Pressure hPa : 600

#### MEASUREMENT

Pressure hPa : 350  
rack travel mm : -1.20  
Tolerance mm : + 0.15

Pressure hPa : 200  
rack travel mm : -2.20  
Tolerance mm : + 0.20

Pressure hPa : 975  
rack travel mm : 0.50  
Tolerance mm : + 0.05

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 214.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700

Del. quantity  
cm<sup>3</sup>/1000 strokes : 216.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 5.60  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97  
Test oil : ISO 4113

Combination No. : 0 402 646 763

Injection pump  
Pump designation : PE6P120A320LS7834  
: -10  
EP type number : 0 412 626 853

Governor  
Governor design. : RQV300...1050PA1065  
: -2  
Governor no. : 0 421 814 135

Cust. part No. : 0260743702

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM401 LA  
Power KW : 230.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1108  
guide sleeve  
travel mm : 9.82  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.13  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 370  
guide sleeve  
travel mm : 2.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 420  
guide sleeve  
travel mm : 2.49

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 750  
guide sleeve  
travel mm : 4.87  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1200

Rack travel in mm : 13.80  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 104.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 13.80  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75



Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :  $>$  8.10

Testing:

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 400  
Pressure hPa : -  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.15

#### MEASUREMENT

Rated speed rpm : 400

K07

Pressure hPa : 400  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 600  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.20

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 227.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 129.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.09.94  
Test oil : ISO 4113

Combination No. : 0 402 646 904

Injection pump  
Pump designation : PE6P120A720RS7126  
: -10  
EP type number : 0 412 626 929

Governor  
Governor design. : RQV300...900PA795  
: -10  
Governor no. : 0 421 813 846

Cust. part No. : 1305081

Customer-spec. information  
Customer : SCANIA  
Motor : DS11

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration  
damper  
(RoBo diaphragm) : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 14.75  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 235.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 4.0

## Spreed

Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 4.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 970

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 50.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 108.0

K10

tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 13.10  
Rated speed rpm : 945  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1150

#### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 19.0  
tolerance degree :  $\pm$  4.0

#### Setting point w/out bumper spring

Rated speed rpm : 100  
CRT mm min. : > 10.00

#### Testing:

Rated speed rpm : 300  
rack travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300  
rack travel mm : 2.00

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 510  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 250  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.20

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 224.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 4.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

## BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 20.06.97  
Test oil : ISO 4113

Combination No. : 0 402 648 783

Injection pump  
Pump designation : PE8P120A320LS7906-1  
EP type number : 0 412 628 925

Governor  
Governor design. : RQ750PA1326  
Governor no. : 0 421 801 815

Cust. part No. : 04222 3938 KY

Customer-spec. information  
Customer : KHD  
Motor : BF8M1015/C  
Power KW : 318.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 200  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values — —

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 5  
                 : - 4- 3- 1

Phasing : 0-45-90-135-180  
         : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 315.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.60  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 365.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 715  
guide sleeve  
travel mm : 4.23  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 610  
guide sleeve  
travel mm : 0.72  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 900  
guide sleeve  
travel mm : 14.89  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 862

guide sleeve  
travel mm : 12.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 930  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 365.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 110.0  
tolerance degree :  $\pm$  4.0

---

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750  
rack travel mm : 11.60

Rated speed rpm : 780  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.50

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 900

Rated speed rpm : 751  
rack travel mm : 11.60

Rated speed rpm : 781  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.50

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50

Rated speed rpm : 752  
rack travel mm : 11.60

Rated speed rpm : 782  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.50

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 900

Rated speed rpm : 753  
rack travel mm : 11.60

Rated speed rpm : 783  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.50

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50

Rated speed rpm : 754  
rack travel mm : 11.60

Rated speed rpm : 784  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.50

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 900

Rated speed rpm : 755  
rack travel mm : 11.60

Rated speed rpm : 785  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.50

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  560

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  580

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.06.97  
Test oil : ISO 4113

Combination No. : 0 402 648 794

Injection pump  
Pump designation : PE8P120A320LS7890  
EP type number : 0 412 628 913

Governor  
Governor design. : RQV350...900PA1266  
Governor no. : 0 421 814 171

Cust. part No. : 0260740502

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 327.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

---

## CRT ZERO POSITION

Rack travel in mm : 10.20  
Tolerance mm : ± 0.10

---

## BASIC SETTING

Rated speed rpm : 600

---

Rack travel in mm : 10.20  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 4.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 958  
guide sleeve  
travel mm : 7.30  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.69  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 770  
guide sleeve  
travel mm : 4.89  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : 3.23  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1073  
guide sleeve  
travel mm : 10.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1160  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1032

Rack travel in mm : 13.50  
Tolerance mm :  $\pm$  2.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.50  
Rated speed rpm : 945  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1025

Tolerance 1/min : + 15  
rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1200

---

#### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : + 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 250  
CRT mm min. : > 6.00

#### Testing:

Rated speed rpm : 350  
rack travel mm : 4.00  
Tolerance mm : + 0.10  
  
Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 10.20  
Tolerance mm : + 0.05  
  
Rated speed rpm : 880  
rack travel mm : 12.50  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### 2-stage LDA setting

Rated speed rpm : 600  
Pressure hPa : 500

#### MEASUREMENT

Pressure hPa : 250  
rack travel mm : -0.50  
Tolerance mm : + 0.05

Pressure hPa : 800  
rack travel mm : 0.80  
Tolerance mm : + 0.05

Pressure hPa : 900  
rack travel mm : 1.20  
Tolerance mm : + 0.10

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 270

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 880  
Del. quantity  
cm3/1000 strokes : 238.0  
Tolerance  
cm3/1000 strokes : + 3.0  
Check tolerance  
cm3/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 178.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm3/1000 strokes : 270.0  
Tolerance  
cm3/1000 strokes : + 20.0  
Check tolerance  
cm3/1000S. : + 24.0

---

#### LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 4.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97  
Test oil : ISO 4113

Combination No. : 0 402 648 967

Injection pump  
Pump designation : PE8P120A320LS7871  
EP type number : 0 412 628 877

Governor  
Governor design. : RQV300...1050PA1078  
: -1K  
Governor no. : 0 421 815 361

Cust. part No. : 9275447

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9408 TI  
Power KW : 400.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 8- 7- 2- 6  
: - 3- 5- 4

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.38  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.69  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 746  
guide sleeve  
travel mm : 6.20  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 353  
guide sleeve  
travel mm : 2.45  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 403  
guide sleeve  
travel mm : 3.18  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.66

K20

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1320  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1185

Rack travel in mm : 10.80  
Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.75  
Rated speed rpm : 1110  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

---

## LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  6.60

### Testing:

Rated speed rpm : 300  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

## TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.15

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 550  
Pressure hPa : 1600  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 9.15

Tolerance mm :  $\pm$  0.20

### MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 675  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 575  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.15

---

## FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 299.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.15  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97  
Test oil : ISO 4113

Combination No. : 0 402 648 967A

Injection pump  
Pump designation : FE8P120A320LS7871  
EP type number : 0 412 628 877

Governor  
Governor design. : RQV300...1050PA1078  
: -1K  
Governor no. : 0 421 815 361

Cust. part No. : 9275448

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9408 TI  
Power KW : 400.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 8- 7- 2- 6  
: - 3- 5- 4

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.10  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.38  
Tolerance mm : ± 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.69  
Tolerance mm : ± 0.25

Rated speed rpm : 746  
guide sleeve  
travel mm : 6.20  
Tolerance mm : ± 0.25

Rated speed rpm : 353  
guide sleeve  
travel mm : 2.45  
Tolerance mm : ± 0.25

Rated speed rpm : 403  
guide sleeve  
travel mm : 3.18  
Tolerance mm : ± 0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.66

Tolerance mm : ± 0.25

Rated speed rpm : 1320  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1185

Rack travel in mm : 10.80  
Tolerance mm : ± 2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 11.75  
Rated speed rpm : 1110  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1300

---

## LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  6.60

### Testing:

Rated speed rpm : 300  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

## TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.15

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 550  
Pressure hPa : 1600  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 9.15

Tolerance mm :  $\pm$  0.20

### MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 675  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 575  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.15

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 299.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.15  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.06.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 670 809  
  
Injection pump  
Pump designation : PE12P120A320LS7807  
: -2  
EP type number : 0 412 620 812  
  
Governor  
Governor design. : RSV375...950POA535  
: -5  
Governor no. : 0 421 833 374  
  
Cust. part No. : 022 074 8002

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM 444 LA  
Power KW : 493.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 10.0  
  
Test nozzle holde  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075  
  
Outside diameter : 8.0  
  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 20.50  
Tolerance mm : ± 0.50  
  
Firing order : 12- 1- 5- 9- 8  
: - 3- 4- 11- 10  
: - 2- 6- 7  
  
Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Start of delivery mark  
  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75  
  
Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 15.60  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 234.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

Rated speed rpm : 375

Rack travel in mm : 6.35  
Tolerance mm : + 0.15

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.85  
Tolerance mm : + 0.55

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950

Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 234.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

##### CONTROL LEVER

control lever  
position degree : 78.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 14.60  
Rated speed rpm : 995  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1075  
Tolerance 1/min : + 5

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1200

##### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 13.00

Testing:

Rated speed rpm : 375  
rack travel mm : 6.35  
Tolerance mm : + 0.15

##### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

**TORQUE CONTROL**

Rated speed rpm : 950  
rack travel mm : 15.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 15.60  
Tolerance mm :  $\pm$  0.10

---

**ANEROID/ALTITUDE  
COMPENSATOR TEST****SETTING**

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 15.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.10

**MEASUREMENT**

Rated speed rpm : 500

Pressure hPa : 300  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 500  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.10

---

**FUEL DELIVERY CHARACTERISTICS**

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 246.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

**Aneroid pressure**

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 137.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

**STARTING FUEL DELIVERY**

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

---

**LOW IDLE**

Rated speed rpm : 375  
Rack travel in mm : 6.35  
Tolerance mm :  $\pm$  0.15  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.06.97  
Test oil : ISO 4113

Combination No. : 0 402 676 819

Injection pump  
Pump designation : PE6P120A320RS7327  
EP type number : 0 412 626 916

Governor  
Governor design. : RSV275...1150P5A580  
Governor no. : 0 421 833 436

Cust. part No. : 1241744/0

Customer-spec. information  
Customer : DAF  
Motor : RS 200 L AG  
Power KW : 200.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 11.40  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000



Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.70  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 6.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 113.0  
tolerance degree : ± 4.0

#### RATED SPEED

rack travel mm : 10.35  
Rated speed rpm : 1182

Tolerance 1/min : ± 8

rack travel mm : 4.00  
Rated speed rpm : 1275

Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1500

rack travel mm : 4.00  
Rated speed rpm : 1285

Tolerance 1/min : ± 15

#### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 275  
rack travel mm : 4.20

Tolerance mm : ± 0.10

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10  
  
rack travel mm : 2.00  
Rated speed rpm : 575  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 9.10  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 340  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 200  
rack travel mm : 9.70  
Tolerance mm :  $\pm$  0.10

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 117.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### LOW IDLE

Rated speed rpm : 275  
  
Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97  
Test oil : ISO 4113

Combination No. : 0 402 676 823C

Injection pump  
Pump designation : PE6P120A320LS7885-1  
EP type number : 0 412 626 948

Governor  
Governor design. : RSV400...1000P1A589  
Governor no. : 0 421 833 449

Cust. part No. : 9881286

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9406 TI-E A3  
Power KW : 258.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : + 4.0

---

Speed

Tolerance  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

---

Rated speed rpm : 400

Rack travel in mm : 5.00  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 26.0

Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 6.0

Speed  
Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 3

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure  
hPa : 1400

Del. quantity  
cm3/1000 strokes : 265.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Speed  
Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 106.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.75  
Rated speed rpm : 935  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1010  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1200

rack travel mm : 4.00  
Rated speed rpm : 1030  
Tolerance 1/min : + 15

---

LOW IDLE

control lever  
position degree : 83.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 3.50  
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 400  
rack travel mm : 5.00  
Tolerance mm : + 0.10

---

TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 13.75  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 13.75  
Tolerance mm : + 0.10

Rated speed rpm : 700  
rack travel mm : 13.75  
Tolerance mm : + 0.30

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1400  
rack travel mm : 13.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 870  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 740  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1400  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : 1400  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

L07

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 400  
  
Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 17.06.97  
Test oil : ISO 4113

Combination No. : 0 402 678 831

Injection pump  
Pump designation : PE8P120A320LS7901  
EP type number : 0 412 628 918

Governor  
Governor design. : RSV350...1050P0A651  
Governor no. : 0 421 833 568

Cust. part No. : 0270745602

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442LA  
Power KW : 297.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 13.40  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.30

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3

governor spring  
pre-tension  
click setting x : 3.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

L09

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 94.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 12.40  
Rated speed rpm : 1075  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1400

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

#### Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.50

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min :  $\pm$  30

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

#### TORQUE CONTROL

Rated speed rpm : 1030

rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.05  
  
Rated speed rpm : 600  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10  
  
Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.35  
Tolerance mm :  $\pm$  0.15

MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 250  
rack travel mm : 9.70  
Tolerance mm :  $\pm$  0.15  
  
Pressure hPa : 500  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.15

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 221.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 143.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97  
Test oil : ISO 4113

Combination No. : 0 402 678 836

Injection pump  
Pump designation : PE8P120A320LS7844  
EP type number : 0 412 628 860

Governor  
Governor design. : RSV550...1050POA672  
Governor no. : 0 421 833 591

Cust. part No. : 0270746402

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442LA  
Power kW : 370.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 225  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 1.00

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.60  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 550

Rack travel in mm : 4.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 2.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 88.0  
tolerance degree :  $\pm$  4.0

#### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 14.60

Rated speed rpm : 1110  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1200

Rated speed rpm : 1071  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 14.60

Rated speed rpm : 1111  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1200

Rated speed rpm : 1072  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 14.60

Rated speed rpm : 1112  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1200

Rated speed rpm : 1073  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 14.60

Rated speed rpm : 1113  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1200

Rated speed rpm : 1074  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 14.60

Rated speed rpm : 1114  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1200

Rated speed rpm : 1175  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 14.60

Rated speed rpm : 1115  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.50

L13

#### Testing:

Rated speed rpm : 550  
rack travel mm : 4.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 570  
Tolerance 1/min :  $\pm$  30

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 15.60  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 15.60  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 450  
Pressure hPa : 1200  
rack travel mm : 15.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 450  
Pressure hPa : -  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 450  
  
Pressure hPa : 600  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 800  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200

Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 287.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 162.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 550  
Rack travel in mm : 4.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.04.97  
Test oil : ISO 4113

Combination No. : 0 402 746 606A

Injection pump  
Pump designation : PES6P110A720RS7406  
EP type number : 0 412 716 810

Governor  
Governor design. : RQV300...1050PA1090  
: -1K  
Governor no. : 0 421 815 497

Cust. part No. : 9279608

## Customer-spec. information

Customer : LIEBHERR  
Motor : D 926 TI-E A3  
Power KW : 230.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 125  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.00  
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spreed

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.20  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 25.0

Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 6.0

Spreed  
Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1102  
guide sleeve  
travel mm : 10.05  
Tolerance mm : + 0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.86  
Tolerance mm : + 0.20

Rated speed rpm : 749  
guide sleeve  
travel mm : 6.11  
Tolerance mm : + 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.75  
Tolerance mm : + 0.25

Rated speed rpm : 1330  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1180

Rack travel in mm : 12.80  
Tolerance mm : + 2.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600  
Del. quantity  
cm3/1000 strokes : 205.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 116.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 12.80  
Rated speed rpm : 1090  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 7.40

#### Testing:

Rated speed rpm : 350

rack travel mm : 5.20

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 420

---

#### TORQUE CONTROL

Rated speed rpm : 1050

rack travel mm : 13.80

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

rack travel mm : 10.90

Tolerance mm :  $\pm$  0.15

Rated speed rpm : 800

rack travel mm : 12.70

Tolerance mm :  $\pm$  0.15

Rated speed rpm : 950

rack travel mm : 13.35

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600

rack travel mm : 11.45

Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1050

Pressure hPa : 1600

rack travel mm : 13.80

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050

Pressure hPa : -

rack travel mm : 10.55

Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 940

rack travel mm : 13.00

Tolerance mm :  $\pm$  0.05

Pressure hPa : 670

rack travel mm : 11.50

Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1600

Rated speed rpm : 500

Del. quantity

cm<sup>3</sup>/1000 strokes : 194.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure

hPa : 1600

Rated speed rpm : 800

Del. quantity

cm<sup>3</sup>/1000 strokes : 201.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity

cm<sup>3</sup>/1000 strokes : 184.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance

cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 10.60

Tolerance mm :  $\pm$  0.20

Del. quantity

cm<sup>3</sup>/1000 strokes : 175.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

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End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97  
Test oil : ISO 4113

Combination No. : 0 402 746 606D

Injection pump  
Pump designation : PES6P110A72ORS7406  
EP type number : 0 412 716 810

Governor  
Governor design. : RQV300...1050PA1090  
: -1K  
Governor no. : 0 421 815 497

Cust. part No. : 9881520

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 926 TI-E A3  
Power KW : 240.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 125  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.00  
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 234.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : + 4.0

---

Speed

---

Tolerance  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

---

Rated speed rpm : 500

Rack travel in mm : 5.10  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 16.0  
Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 6.0

Speed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1102  
guide sleeve  
travel mm : 10.05  
Tolerance mm : + 0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.86  
Tolerance mm : + 0.20

Rated speed rpm : 749  
guide sleeve  
travel mm : 6.11  
Tolerance mm : + 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.75  
Tolerance mm : + 0.25

Rated speed rpm : 1330  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

L20

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1179

Rack travel in mm : 12.80  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1600

Del. quantity  
cm3/1000 strokes : 234.0  
Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 113.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 13.80  
Rated speed rpm : 940  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1090  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1150

##### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

CRT mm min. : > 7.50

#### Testing:

Rated speed rpm : 500

rack travel mm : 5.10

Tolerance mm :  $\pm$  0.10

#### TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 14.80

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

rack travel mm : 13.50

Tolerance mm :  $\pm$  0.15

Rated speed rpm : 800

rack travel mm : 14.70

Tolerance mm :  $\pm$  0.15

Rated speed rpm : 700

rack travel mm : 14.20

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600

rack travel mm : 13.85

Tolerance mm :  $\pm$  0.15

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 900

Pressure hPa : 1600

rack travel mm : 14.80

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900

Pressure hPa : -

rack travel mm : 12.10

Tolerance mm :  $\pm$  0.15

##### MEASUREMENT

Rated speed rpm : 900

Pressure hPa : 1100

rack travel mm : 13.70

Tolerance mm :  $\pm$  0.10

Pressure hPa : 900  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.10

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1600

Rated speed rpm : 500

Del. quantity

cm<sup>3</sup>/1000 strokes : 266.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure

hPa : 1600

Rated speed rpm : 800

Del. quantity

cm<sup>3</sup>/1000 strokes : 245.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity

cm<sup>3</sup>/1000 strokes : 225.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 11.60

Tolerance mm :  $\pm$  0.20

Del. quantity

cm<sup>3</sup>/1000 strokes : 225.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  14.0

#### LOW IDLE

Rated speed rpm : 500  
Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97  
Test oil : ISO 4113

Combination No. : 0 402 746 606F

Injection pump  
Pump designation : PES6P110A720RS7406  
EP type number : 0 412 716 810

Governor  
Governor design. : RQV300...1050PA1090  
: -1K  
Governor no. : 0 421 815 497

Cust. part No. : 9882886

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 926 TI-E A3  
Power KW : 234.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 125  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.00  
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 234.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 400

Rack travel in mm : 5.10  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1102  
guide sleeve  
travel mm : 10.05  
Tolerance mm : + 0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.86  
Tolerance mm : + 0.20

Rated speed rpm : 749  
guide sleeve  
travel mm : 6.11  
Tolerance mm : + 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.75  
Tolerance mm : + 0.25

Rated speed rpm : 1330  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1179

Rack travel in mm : 12.80  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 234.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 113.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 13.80  
Rated speed rpm : 940  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1090  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1150

##### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 300

CRT mm min. : > 7.50

Testing:

Rated speed rpm : 400  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 800  
rack travel mm : 14.70  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 700  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 900  
Pressure hPa : 1600  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
Pressure hPa : -  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.15

##### MEASUREMENT

Rated speed rpm : 900

Pressure hPa : 1100  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 900  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 266.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.09.95  
Test oil : ISO 4113

Combination No. : 0 402 746 959

Injection pump  
Pump designation : PES6P120A720RS7292  
: -1  
EP type number : 0 412 726 939

Governor  
Governor design. : RQV350...1150PA1104K  
Governor no. : 0 421 815 368

Cust. part No. : 0250741402

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 172.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

L27

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 3.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.40  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 350

Rack travel in mm : 6.00

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1205  
guide sleeve  
travel mm : 9.35  
Tolerance mm : ± 0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.53  
Tolerance mm : ± 0.20

Rated speed rpm : 855  
guide sleeve  
travel mm : 5.56  
Tolerance mm : ± 0.25

Rated speed rpm : 540

guide sleeve  
travel mm : 3.09  
Tolerance mm : ± 0.25

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1329

Rack travel in mm : 13.25  
Tolerance mm : ± 1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### CONTROL LEVER

control lever  
position degree : 109.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 13.40  
Rated speed rpm : 1195  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1300  
Tolerance 1/min : ± 15

rack travel mm : 0.70  
Tolerance mm : ± 0.70  
Rated speed rpm : 1400

---

## LOW IDLE

control lever  
position degree : 65.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. :  $>$  6.88

### Testing:

Rated speed rpm : 350  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

## TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 14.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1500  
rack travel mm : 14.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
Pressure hPa : -  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.15

### MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 1050  
rack travel mm : 13.60  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 450  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.10

---

### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 283.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

#### STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 13.60  
Tolerance mm : +- 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 19.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 6.00  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.09.95  
Test oil : ISO 4113

Combination No. : 0 402 746 960

Injection pump  
Pump designation : PES6P120A720RS7292  
: -1  
EP type number : 0 412 726 939

Governor  
Governor design. : RQV350...1150PA1104  
: -1K  
Governor no. : 0 421 815 371

Cust. part No. : 0250741302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 157.0

## TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5

M03

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 3.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.40  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206  
guide sleeve  
travel mm : 9.35  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.53  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 855  
guide sleeve  
travel mm : 5.56  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 540  
guide sleeve  
travel mm : 3.09  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1331

Rack travel in mm : 13.40  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 109.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 13.40  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1305  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1400

---

## LOW IDLE

control lever  
position degree : 65.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
CRT mm min. :  $>$  6.88

### Testing:

Rated speed rpm : 350  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

## TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1500  
rack travel mm : 14.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
Pressure hPa : -  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.15

## MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 1050  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 400  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.15

---

### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 277.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 143.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 13.80  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 6.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.09.95  
Test oil : ISO 4113

Combination No. : 0 402 746 961

Injection pump  
Pump designation : PES6P120A720RS7292  
: -1  
EP type number : 0 412 726 939

Governor  
Governor design. : RQV350...1150PA1104  
: -2K  
Governor no. : 0 421 815 372

Cust. part No. : 0250741202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 142.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5

M07

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 3.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.50  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 277.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 350

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206  
guide sleeve  
travel mm : 9.35  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.53  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 855  
guide sleeve  
travel mm : 5.56  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 540  
guide sleeve  
travel mm : 3.09  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1331

Rack travel in mm : 13.50  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 277.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### CONTROL LEVER

control lever  
position degree : 108.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 13.50  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1305  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1400

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
CRT mm min. : > 7.00

#### Testing:

Rated speed rpm : 350  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 14.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1500  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
Pressure hPa : -  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.15

---

#### MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 850  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 350  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.20

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 270

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 281.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 275.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.09.95  
Test oil : ISO 4113

Combination No. : 0 402 746 962

Injection pump  
Pump designation : PES6P120A720RS7292  
: -1  
EP type number : 0 412 726 939

Governor  
Governor design. : RQV350...1150PA1104  
: -3K  
Governor no. : 0 421 815 373

Cust. part No. : 0250741102

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 127.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5

M11

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 3.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.20

Tolerance mm	: ± 0.05
<hr/>	
Del. quantity cm <sup>3</sup> /1000 strokes	: 271.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Spread	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 12.0
<hr/>	

Rated speed rpm	: 350
Rack travel in mm	: 6.00
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 13.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 6.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1205
guide sleeve travel mm	: 9.35
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 350
guide sleeve travel mm	: 1.53
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 855
guide sleeve travel mm	: 5.56
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 540

guide sleeve travel mm	: 3.09
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1480
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

##### GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1329
<hr/>	
Rack travel in mm	: 13.20
Tolerance mm	: ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure hPa	: 1500
Del. quantity cm <sup>3</sup> /1000 strokes	: 271.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

##### CONTROL LEVER

control lever position degree	: 109.0
tolerance degree	: ± 4.0
<hr/>	
RATED SPEED	
rack travel mm	: 13.20
Rated speed rpm	: 1195
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1300
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.70
Tolerance mm	: ± 0.70
Rated speed rpm	: 1400

---

## LOW IDLE

control lever  
position degree : 65.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. :  $>$  7.00

### Testing:

Rated speed rpm : 350  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

## TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1500  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
Pressure hPa : -  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.15

### MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 850  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 350  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.10

---

### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 262.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 256.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 13.70  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 6.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.06.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 796 041  
  
Injection pump  
Pump designation : PES6H110/320RS19  
EP type number : 0 412 716 006  
  
Governor  
Governor design. : RE36  
Governor no. : 0 421 890 374

Cust. part No. : 8192870 P03 v.04/97

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : D7C  
Power kW : 228.0

## TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 082  
  
Inlet press. bar : 3.0  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 008  
  
Outside diameter : 6.0

M15

x inside diameter : 2.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 8.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2  
: - 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, U<sub>act</sub> = 2.5 V

## TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min<sup>-1</sup>: 0  
Setting point

(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check

tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 660  
Uact V : 3.000  
Prestroke solenoid  
Stroke mm : 5.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 359.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0  
FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 950

TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt : +/- 0.060  
Check tolerance  
Volt : +/- 0.060  
Prestroke solenoid  
Stroke mm : 5.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.08.95  
Test oil : ISO 4113  
Combination No. : 0 402 846 059  
Injection pump  
Pump designation : PE6P120A720RS8026  
EP type number : 0 412 826 027  
Governor  
Governor design. : RQV200...950PA1091K  
Governor no. : 0 421 815 984

Cust. part No. : 1355081

Customer-spec. information  
Customer : SCANIA  
Motor : DSC1172

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 2.5  
Test nozzle holder  
assembly : 1 688 901 104  
Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5  
Test Lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0

M17

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50  
Start of delivery mark  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700  
Rack travel in mm : 12.35  
Tolerance mm : ± 0.05  
Rated speed rpm : 250  
Rack travel in mm : 4.40  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1008  
guide sleeve  
travel mm : 9.87  
Tolerance mm : ± 0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.26  
Tolerance mm : ± 0.20

Rated speed rpm : 800  
guide sleeve  
travel mm : 6.59  
Tolerance mm : ± 0.25

Rated speed rpm : 310  
guide sleeve  
travel mm : 2.00  
Tolerance mm : ± 0.25

Rated speed rpm : 360  
guide sleeve  
travel mm : 2.45  
Tolerance mm : ± 0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : 3.58  
Tolerance mm : ± 0.25

Rated speed rpm : 1200  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1

Rated speed rpm : 1060  
Rack travel in mm : 12.50  
Tolerance mm : ± 1.30

CONTROL LEVER

control lever  
position degree : 65.0  
tolerance degree : ± 4.0

control lever  
position degree : 118.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.50  
Rated speed rpm : 995  
Tolerance 1/min : ± 5  
Check  
speed 1/min : ± 10

rack travel mm : 4.00  
Rated speed rpm : 1075  
Tolerance 1/min : ± 15  
Check  
speed 1/min : ± 20

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1150

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : ± 4.0

control lever  
position degree : 17.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 150  
CRT mm min. : > 5.40

Testing:

Rated speed rpm : 250  
rack travel mm : 4.40  
Tolerance mm : ± 0.10

Rated speed rpm : 325

---

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 950  
Pressure hPa : 1500  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
Pressure hPa : -  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 950

Pressure hPa : 520  
rack travel mm : 7.80  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 800  
rack travel mm : 9.85  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure

hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 384.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 189.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 4.40  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 19.06.97

Test oil : ISO 4113

Combination No. : 0 403 466 138JA

## Injection pump

Pump designation : PES6MW100/120RS1178

EP type number : 0 413 406 160

## Governor

Governer design. : RSV350...1250MW2A332

: -4

Governer no. : 0 420 085 220

Cust. part No. : 3921188

## Customer-spec. information

Customer : CDC

Motor : 6 CT

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

## Test nozzle holde assembly

: 1 688 901 017

## Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : ± 1.0

Prestroke mm : 3.50

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 14.00

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.10

Tolerance mm : ± 0.05

## Del. quantity

cm<sup>3</sup>/1000 strokes : 143.5

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spreed

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

Rated speed rpm : 350

Rack travel in mm : 6.80  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 22.0

Tolerance  
cm3/1000 strokes : + 2.0

Check tolerance  
cm3/1000S. : + 4.5

Spreed

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : + 0.35

governor spring  
pre-tension  
click setting x : 5.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm3/1000 strokes : 143.5

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spreed

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

#### CONTROL LEVER

control lever  
position degree : 99.0  
tolerance degree : + 4.0

#### RATED SPEED

rack travel mm : 13.10  
Rated speed rpm : 1120  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1255  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1270  
Tolerance 1/min : + 15

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : + 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 6.30  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 350  
rack travel mm : 6.80  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 490  
Tolerance 1/min : + 30

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.10  
Tolerance mm : + 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 14.10  
Tolerance mm : + 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.70  
Tolerance mm : + 0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 335  
rack travel mm : 13.20  
Tolerance mm : + 0.20

Pressure hPa : 165  
rack travel mm : 11.70  
Tolerance mm : + 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

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rack travel mm : 20.00  
Tolerance mm : + 1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 15.0

---

#### LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 6.80  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.06.97  
Test oil : ISO 4113  
Combination No. : 0 400 846 522  
Injection pump  
Pump designation : PES6A90D410RS2667  
EP type number : 0 410 896 080  
Governor  
Governor design. : RGV300...1400AB1065  
                  : -4L  
Governor no. : 0 420 212 168  
Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 366  
Power KW : 100.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

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x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
                  : 4  
Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1400  
Rack travel in mm : 11.15  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 64.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

Rated speed rpm : 300

Rack travel in mm : 9.00

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1450  
guide sleeve  
travel mm : 8.45  
Tolerance mm : ± 0.05

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.05  
Tolerance mm : ± 0.25

Rated speed rpm : 600  
guide sleeve  
travel mm : 3.20  
Tolerance mm : ± 0.80

Rated speed rpm : 650  
guide sleeve  
travel mm : 3.95  
Tolerance mm : ± 0.25

##### GUIDE SLEEVE POSITION

control lever  
position degree : 4

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 64.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

##### CONTROL LEVER

control lever  
position degree : 112.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.10  
Rated speed rpm : 1445  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1555  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1650

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 10.30

##### Testing:

Rated speed rpm : 300  
rack travel mm : 9.00  
Tolerance mm : ± 0.10

Rated speed rpm : 610

---

#### TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 1100  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.15

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 17.20  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 9.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97  
Test oil : ISO 4113  
  
Combination No. : 0 400 866 069  
  
Injection pump  
Pump designation : PES6A90D320/3RS2464  
EP type number : 0 410 896 029  
  
Governor  
Governor design. : RSV300...1000A7C529R  
Governor no. : 0 420 233 191

Cust. part No. :

Customer-spec. information  
Customer : MWM

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 922 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holder  
assembly : 0 681 343 009\_  
  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 014  
  
Outside diameter : 6.0  
  
x inside diameter : 2.0  
x length mm : 600

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## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 2.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 980  
  
Rack travel in mm : 10.30  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 68.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 2.5  
  
Speed  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm3/1000S. : 4.5

---

Rated speed rpm : 300  
Rack travel in mm : 7.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm3/1000 strokes : 10.0  
Tolerance  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 4.5  
Check tolerance  
cm3/1000S. : 6.0

#### (9) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800  
Rack travel in mm : 0.65  
Tolerance mm :  $\pm$  0.35

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 68.0  
Tolerance  
cm3/1000 strokes :  $\pm$  0.5  
Check tolerance  
cm3/1000S. :  $\pm$  2.5  
Spreed  
Tolerance  
cm3/1000 strokes : 3.0  
Check tolerance  
cm3/1000S. : 4.5

---

##### CONTROL LEVER

control lever  
position degree : 65.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 9.30  
Rated speed rpm : 1025  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1055  
Tolerance 1/min :  $\pm$  15

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1200

rack travel mm : 4.00

---

##### LOW IDLE

control lever  
position degree : 28.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 8.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.50

##### Testing:

Rated speed rpm : 300  
rack travel mm : 7.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 430  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 450

CRT mm max. :  $<$  1.00

---

##### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.05

---

Start interlock

Rated speed rpm : > 100

Check  
speed 1/min : > 80

---

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 20.25

Tolerance mm : +- 0.75

Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 7.5

Check tolerance  
cm<sup>3</sup>/1000S. : +- 10.0

---

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 7.50

Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spreed  
Tolerance

cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.07.97  
Test oil : ISO 4113

Combination No. : 0 400 866 207AA

Injection pump  
Pump designation :  
EP type number :

Governor  
Governor design. :  
Governor no. :

Cust. part No. : 3921147

Customer-spec. information  
Customer : CUMMINS  
Motor : & C 8.3

## TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

NO1

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 28.0  
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

\*NW after s.o.d. : 10.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 400

Rack travel in mm : 5.60

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 2.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### CONTROL LEVER

control lever  
position degree : 95.0  
tolerance degree : ± 4.0

#### RATED SPEED

rack travel mm : 12.20  
Rated speed rpm : 1065  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1150  
Tolerance 1/min : ± 5

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1350

rack travel mm : 4.00  
Rated speed rpm : 1150  
Tolerance 1/min : ± 15

#### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.10  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

#### Testing:

Rated speed rpm : 400  
rack travel mm : 5.60  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 500  
Tolerance 1/min : ± 30

#### TORQUE CONTROL



Rated speed rpm : 1000  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.07.97  
Test oil : ISO 4113

Combination No. : 0 400 866 208AI

Injection pump  
Pump designation :  
EP type number :

Governor  
Governor design. :  
Governor no. :

Cust. part No. : 3921142

Customer-spec. information  
Customer : CUMMINS

## TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 688 901 100

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

N04

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
  
Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

°NW after s.o.d. : 10.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29  
  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

## Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance cm <sup>3</sup> /1000S.	:	6.5
--	---	-----

---

Rated speed rpm	:	400
-----------------	---	-----

Rack travel in mm	:	5.70
Tolerance mm	:	± 0.10

Del. quantity cm <sup>3</sup> /1000 strokes	:	17.0
--	---	------

Tolerance cm <sup>3</sup> /1000 strokes	:	± 2.0
--	---	-------

Check tolerance cm <sup>3</sup> /1000S.	:	± 4.5
--	---	-------

Spread Tolerance cm <sup>3</sup> /1000 strokes	:	6.0
--	---	-----

Check tolerance cm <sup>3</sup> /1000S.	:	8.0
--	---	-----

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever position degree	:	FREE
Rated speed rpm	:	800

Rack travel in mm	:	0.50
Tolerance mm	:	± 0.20

governor spring pre-tension click setting x	:	2.00
---	---	------

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1000
Aneroid pressure hPa	:	-

Del. quantity cm <sup>3</sup> /1000 strokes	:	120.0
--	---	-------

Tolerance cm <sup>3</sup> /1000 strokes	:	± 1.0
--	---	-------

Check tolerance cm <sup>3</sup> /1000S.	:	± 3.5
--	---	-------

Spread Tolerance cm <sup>3</sup> /1000 strokes	:	4.0
--	---	-----

Check tolerance cm <sup>3</sup> /1000S.	:	6.5
--	---	-----

NOS

---

CONTROL LEVER

control lever position degree	:	87.0
tolerance degree	:	± 4.0

RATED SPEED rack travel mm	:	11.10
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Rated speed rpm	:	1065
Tolerance 1/min	:	± 5

rack travel mm	:	4.00
Rated speed rpm	:	1090

Tolerance 1/min	:	± 5
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rack travel mm	:	0.85
Tolerance mm	:	± 0.55

Rated speed rpm	:	1300
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rack travel mm	:	4.00
Rated speed rpm	:	1090

Tolerance 1/min	:	± 15
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---

LOW IDLE

control lever position degree	:	69.0
tolerance degree	:	± 4.0

Setting point w/out bumper spring

Rated speed rpm	:	400
rack travel mm	:	5.20

Tolerance mm	:	± 0.10
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Testing:

Rated speed rpm	:	400
rack travel mm	:	5.70

Tolerance mm	:	± 0.10
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rack travel mm	:	2.00
Rated speed rpm	:	450

Tolerance 1/min	:	± 30
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---

TORQUE CONTROL

Rated speed rpm	:	1000
rack travel mm	:	12.15

Tolerance mm	:	± 0.05
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---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 400  
  
Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.07.97  
Test oil : ISO 4113

Combination No. : G 400 866 208AJ

Injection pump  
Pump designation :  
EP type number :

Governor  
Governor design. :  
Governor no. :

Cust. part No. : 3927149

Customer-spec. information  
Customer : CUMMINS

## TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 688 901 100

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

N07

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

\*NW after s.o.d. : 10.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

Rated speed rpm : 400

Rack travel in mm : 5.70  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 2.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

CONTROL LEVER

control lever  
position degree : 87.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 11.10  
Rated speed rpm : 1065  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1090  
Tolerance 1/min : + 5

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1300

rack travel mm : 4.00  
Rated speed rpm : 1090  
Tolerance 1/min : + 15

---

LOW IDLE

control lever  
position degree : 69.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.20  
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 400  
rack travel mm : 5.70  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 450  
Tolerance 1/min : + 30

---

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.15  
Tolerance mm : + 0.05

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 400  
  
Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.06.97  
Test oil : ISO 4113

Combination No. : 0 400 866 222

Injection pump  
Pump designation : PES6A95D410/3RS2907  
EP type number : 0 410 896 884

Governor  
Governor design. : RSV325...1250A5C950L  
Governor no. : 0 420 232 641

Cust. part No. : 0423 1601 KY

## Customer-spec. information

Customer : KHD-DMI  
Motor : F6L912/913\_NEU  
Power KW : 81.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0



Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.25

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree : ± 4.0

#### RATED SPEED

rack travel mm : 10.35  
Rated speed rpm : 1295  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1550

rack travel mm : 4.00  
Rated speed rpm : 1400  
Tolerance 1/min : ± 15

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

#### Testing:

Rated speed rpm : 325  
rack travel mm : 8.50  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 595  
Tolerance 1/min : ± 30

---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.06.97

Test oil : ISO 4113

Combination No. : 0 400 866 235

## Injection pump

Pump designation : PES6A95D410/3RS2907

EP type number : 0 410 896 884

## Governor

Governer design. : RSV325...1250A5C951L

Governer no. : 0 420 232 642

Cust. part No. : 0423 2334 KY

## Customer-spec. information

Customer : KHD-DMI

Motor : F6L913

Power KW : 89.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly

: 0 681 343 009

Opening pressure  
bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35

Tolerance mm : ± 0.05

Del. quantity

cm<sup>3</sup>/1000 strokes : 76.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.25

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 10.35  
Rated speed rpm : 1295  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1550

rack travel mm : 4.00  
Rated speed rpm : 1400  
Tolerance 1/min : ± 15

---

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

##### Testing:

Rated speed rpm : 325  
rack travel mm : 8.50  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 595  
Tolerance 1/min : ± 30

---

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10

End of test specification sheet

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

---

#### STARTING FUEL DELIVERY

---

Rated speed rpm : 100  
rack travel mm : 17.00  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

---

Rated speed rpm : 325  
  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97  
Test oil : ISO 4113  
Combination No. : 0 400 876 109  
Injection pump  
Pump designation : PES6A80D41ORS2085X  
EP type number : 0 410 886 045  
Governor  
Governor design. : RSV350...1300A2C1005  
: L  
Governor no. : 0 420 232 405  
Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM352  
Power KW : 62.0

## TEST BENCH REQUIREMENTS

Inlet line : 1.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

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x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300  
Rack travel in mm : 8.05  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0  
Speed

Tolerance  
cm3/1000 strokes : 2.0

Check tolerance  
cm3/1000S. : 3.5

Rated speed rpm : 350

Del. quantity  
cm3/1000 strokes : 11.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 2.5

Spread  
Tolerance  
cm3/1000 strokes : 2.0

Check tolerance  
cm3/1000S. : 3.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : + 0.35

governor spring  
pre-tension  
click setting x : 4.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure  
hPa : -

Del. quantity  
cm3/1000 strokes : 39.5

Tolerance  
cm3/1000 strokes : + 0.5

Check tolerance  
cm3/1000S. : + 2.0

Spread  
Tolerance  
cm3/1000 strokes : 2.0

Check tolerance  
cm3/1000S. : 3.5

#### CONTROL LEVER

control lever  
position degree : 106.0  
tolerance degree : + 4.0

#### RATED SPEED

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1575

rack travel mm : 4.00  
Rated speed rpm : 1420  
Tolerance 1/min : + 15

#### ASSEMBLY GOVERNOR SETTING

rack travel mm : 8.00

rack travel mm : 8.00

rack travel mm : 8.00

rack travel mm : 8.00

rack travel mm : 8.00

rack travel mm : 8.00

#### LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 6.90  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 17.50

#### Testing:

rack travel mm : 2.00  
Rated speed rpm : 620  
Tolerance 1/min : + 30

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 8.05

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

rack travel mm : 9.35

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700

rack travel mm : 9.30

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950

rack travel mm : 8.45

Tolerance mm :  $\pm$  0.15

Check tolerance

cm<sup>3</sup>/1000s. : 3.5

End of test specification sheet

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity

cm<sup>3</sup>/1000 strokes : 38.5

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance

cm<sup>3</sup>/1000s. :  $\pm$  3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 14.70

Tolerance mm :  $\pm$  0.20

Del. quantity

cm<sup>3</sup>/1000 strokes : 83.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  5.0

Check tolerance

cm<sup>3</sup>/1000s. :  $\pm$  8.0

#### LOW IDLE

Rated speed rpm : 350

Del. quantity

cm<sup>3</sup>/1000 strokes : 11.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance

cm<sup>3</sup>/1000s. :  $\pm$  2.5

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 2.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.06.97  
Test oil : ISO 4113  
Combination No. : 0 400 876 310  
Injection pump  
Pump designation : PES6A90D410RS2596  
EP type number : 0 410 896 073  
Governor  
Governor design. : RSV350...1200A0C1148  
: -1L  
Governor no. : 0 420 232 456  
Cust. part No. :

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM352A  
Power KW : 110.0

## TEST BENCH REQUIREMENTS

Inlet line : 1.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1180  
Rack travel in mm : 12.15  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 73.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1180  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 73.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

CONTROL LEVER

control lever  
position degree : 111.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1460

rack travel mm : 4.00  
Rated speed rpm : 1360  
Tolerance 1/min : ± 15

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 8.50  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

rack travel mm : 2.00  
Rated speed rpm : 510  
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1180  
rack travel mm : 12.15  
Tolerance mm : ± 0.05

Rated speed rpm : 725  
rack travel mm : 13.65  
Tolerance mm : ± 0.05

Rated speed rpm : 900  
rack travel mm : 13.10  
Tolerance mm : ± 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 13.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 235  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 450  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 725  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 81.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

Aneroid pressure  
hPa : 900  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 52.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 16.20  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.06.97  
Test oil : ISO 4113  
  
Combination No. : 0 400 876 397  
  
Injection pump  
Pump designation : PES6A95D410RS2797  
EP type number : 0 410 896 900  
  
Governor  
Governor design. : RSV350...1400AOC2006  
                  : -8L  
Governor no. : 0 420 232 580

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 366  
Power KW : 100.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.3  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holder  
assembly : 0 681 343 009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 015  
  
Outside diameter : 6.0

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x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
                  : 4  
  
Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1380  
  
Rack travel in mm : 10.15  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 62.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

## Spreed

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 8.10  
Tolerance mm : ± 0.10

Del. quantity  
cm3/1000 strokes : 8.0

Tolerance  
cm3/1000 strokes : ± 2.0

Check tolerance  
cm3/1000S. : ± 4.5

## Spreed

Tolerance  
cm3/1000 strokes : 5.5

Check tolerance  
cm3/1000S. : 9.0

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 4.50

### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1380  
Aneroid pressure  
hPa : -

Del. quantity  
cm3/1000 strokes : 62.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0

## Spreed

Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 8.0

### CONTROL LEVER

control lever  
position degree : 111.0  
tolerance degree : ± 4.0

### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1430  
rack travel mm : 9.10

Rated speed rpm : 1496  
Tolerance 1/min : ± 6  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1650

Rated speed rpm : 1431  
rack travel mm : 9.10

Rated speed rpm : 1497  
Tolerance 1/min : ± 6  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1650

Rated speed rpm : 1432  
rack travel mm : 9.10

Rated speed rpm : 1498  
Tolerance 1/min : ± 6  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1650

Rated speed rpm : 1433  
rack travel mm : 9.10

Rated speed rpm : 1499  
Tolerance 1/min : ± 6  
rack travel mm : 4.00

rack travel mm : 1.00

Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1650

Rated speed rpm : 1434  
rack travel mm : 9.10

Rated speed rpm : 1500  
Tolerance 1/min :  $\pm$  6  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1650

Rated speed rpm : 1435  
rack travel mm : 9.10

Rated speed rpm : 1501  
Tolerance 1/min :  $\pm$  6  
rack travel mm : 4.00

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1650

#### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. :  $>$  19.50

#### Testing:

Rated speed rpm : 350  
rack travel mm : 8.10  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 510  
Tolerance 1/min :  $\pm$  30

#### SET IDLE AUXILIARY SPRING

Rated speed rpm : 100

#### TORQUE CONTROL

Rated speed rpm : 1380  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 400  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 630  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 925  
rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.15

#### FUEL DELIVERY CHARACTERISTICS

##### Aneroid pressure

hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

##### Aneroid pressure

hPa : -  
Rated speed rpm : 630  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 51.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

##### Aneroid pressure

hPa : -  
Rated speed rpm : 925  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 7.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 10.0

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LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 8.10  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

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End of test specification sheet

## BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.97  
Test oil : ISO 4113

Combination No. : F 002 A02 053

Injection pump  
Pump designation : PES6A95D320/3RS2916  
EP type number : F 002 A10 010

Governor  
Governor design. : RSV475...1050AOC933R  
Governor no. : F 002 A20 239

Cust. part No. : 3283920

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BT  
Power KW : 107.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 7.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.20  
Tolerance mm : ± 0.05



Del. quantity cm <sup>3</sup> /1000 strokes	: 104.8
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 6.5

Rated speed rpm	: 475
Rack travel in mm	: 5.40
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 18.8
Tolerance cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.5
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	: FREE
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring pre-tension click setting x	: 4.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
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Aneroid pressure hPa	: 800
Del. quantity cm <sup>3</sup> /1000 strokes	: 104.8
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 6.5

#### CONTROL LEVER

control lever position degree	: 104.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 11.20
Rated speed rpm	: 1110
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1200
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1300

rack travel mm	: 4.00
Rated speed rpm	: 1200
Tolerance 1/min	: ± 15

#### LOW IDLE

control lever position degree	: 85.0
tolerance degree	: ± 4.0

Control lever difference Grad	: 19.0
tolerance degree	: ± 6.0

#### Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 4.90
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
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CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 475  
rack travel mm : 5.40  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 580  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.20

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 800

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 560  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.20

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 800  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 112.0

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Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 79.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

#### LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 5.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.8  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

End of test specification sheet